A1 MECHANICAL ABBREVIATIONS

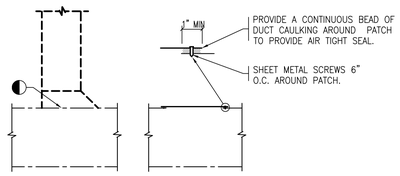
A/E	ARCHITECT / ENGINEER
AFF	ABOVE FINISHED FLOOR
AHU	AIR-HANDLING UNIT
APD	AIR PRESSURE DROP
BTUH	BRITISH THERMAL UNIT PER HOUR
CCD	COOLING COIL CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CV	CONSTANT VOLUME
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE
DIA	DIAMETER
DN	DOWN
EA	EXHAUST AIR
EF	EXHAUST FAN
EWT	ENTERING WATER TEMPERATURE
EX.	EXISTING
F&T	FLOAT AND THERMOSTATIC
F/S DMPR	COMBINATION FIRE SMOKE DAMPER
FD	FLOOR DRAIN
FD	FIRE DAMPER
GAL	GALLONS
GPM	GALLONS PER MINUTE
GS	GALVANIZED STEEL
HD	HEAD
HP	HORSEPOWER
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
IN	INCHES
LBS/HR	POUNDS PER HOUR
LF	LINEAR FOOT (FEET)
LPR	LOW PRESSURE RETURN (STEAM CONDENSATE)
LPS	LOW PRESSURE STEAM
MAX	MAXIMUM
MBH	1000 BTUH
MER	MECHANICAL EQUIPMENT ROOM
MIN	MINIMUM
MPR	MEDIUM PRESSURE RETURN
MPS	MEDIUM PRESSURE SUPPLY
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
R/E	RETURN OR EXHAUST
RET	COMMON RETURN
RHC	REHEAT COIL
SA	SUPPLY AIR
SF	SUPPLY FAN
SG	SUPPLY AIR GRILLE
SQ FT	SQUARE FOOT (FEET)
SR	SUPPLY AIR REGISTER
ST	STEAM TRAP
TP	TRAP
TSTAT	THERMOSTAT
V	VALVE
VD	VOLUME DAMPER (MANUAL OPPOSED BLADE)
VSD	VARIABLE SPEED DRIVE
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
WG	WATER GAGE
WPD	WATER SIDE PRESSURE DROP

A3 DUCTWORK SYMBOLS

UP / DN	EXISTING SUPPLY DUCT (UP & DOWN)
UP / DN	EXISTING EXHAUST DUCT (UP & DOWN)
UP / DN	EXISTING RETURN DUCT (UP & DOWN)
	EXISTING DUCT TO REMAIN
	EXISTING DUCT TO BE REMOVED
	LIMIT OF DEMOLITION

B3 PIPING SYMBOLS

CHS	EXISTING CHILLED WATER SUPPLY
CHR	EXISTING CHILLED WATER RETURN
MPS	EXISTING MEDIUM PRESSURE STEAM
MPR	EXISTING MEDIUM PRESSURE STEAM CONDENSATE RETURN
LPS	EXISTING LOW PRESSURE STEAM
LPR	EXISTING LOW PRESSURE STEAM CONDENSATE RETURN
CHS	EXISTING CHILLED WATER SUPPLY
HWS	EXISTING HOT WATER SUPPLY
RET	EXISTING WATER RETURN
CCD	EXISTING COOLING COIL CONDENSATE DRAIN LINE
CHS	REMOVE EXISTING CHILLED WATER SUPPLY
HWS	REMOVE EXISTING HOT WATER SUPPLY
RET	REMOVE EXISTING WATER RETURN
CCD	REMOVE EXISTING COOLING COIL CONDENSATE DRAIN LINE
MPS	REMOVE EXISTING MEDIUM PRESSURE STEAM
MPR	REMOVE EXISTING MEDIUM PRESSURE STEAM CONDENSATE RETURN
LPS	REMOVE EXISTING LOW PRESSURE STEAM
LPR	REMOVE EXISTING LOW PRESSURE STEAM CONDENSATE RETURN
	PIPE CONNECTION TO UNIT ABOVE
	PIPE UP
	PIPE DOWN
	CAPPED DUCTWORK OR PIPING
	CONTROL VALVE (2-WAY)
TP	TRAP
T	THERMOSTAT (SENSOR)

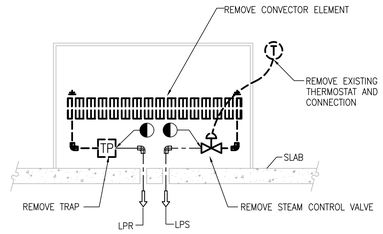


NOTE:

1) PATCH TO BE ONE GAUGE HEAVIER THAN EXISTING DUCT.

B5 DUCT CAPPING/PATCHING DETAIL

SCALE: NTS



C5 CONVECTOR DEMOLITION DIAGRAM

SCALE: NTS

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

CONSULTANTS:

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Drawing Title: MECHANICAL DEMOLITION GENERAL NOTES, SYMBOLS & ABBREVIATIONS

Approved: Project Director: Approver

Project Title: VA NY HARBOR HEALTHCARE SYSTEM
MANHATTAN VAMC - BUILDING 1
9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date: AUGUST 15, 2013 | **Checked:** JB | **Drawn:** SO

Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MD001

BUILDING IS FULLY SPRINKLERED

Scale: AS NOTED

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VA FORM 08-6231

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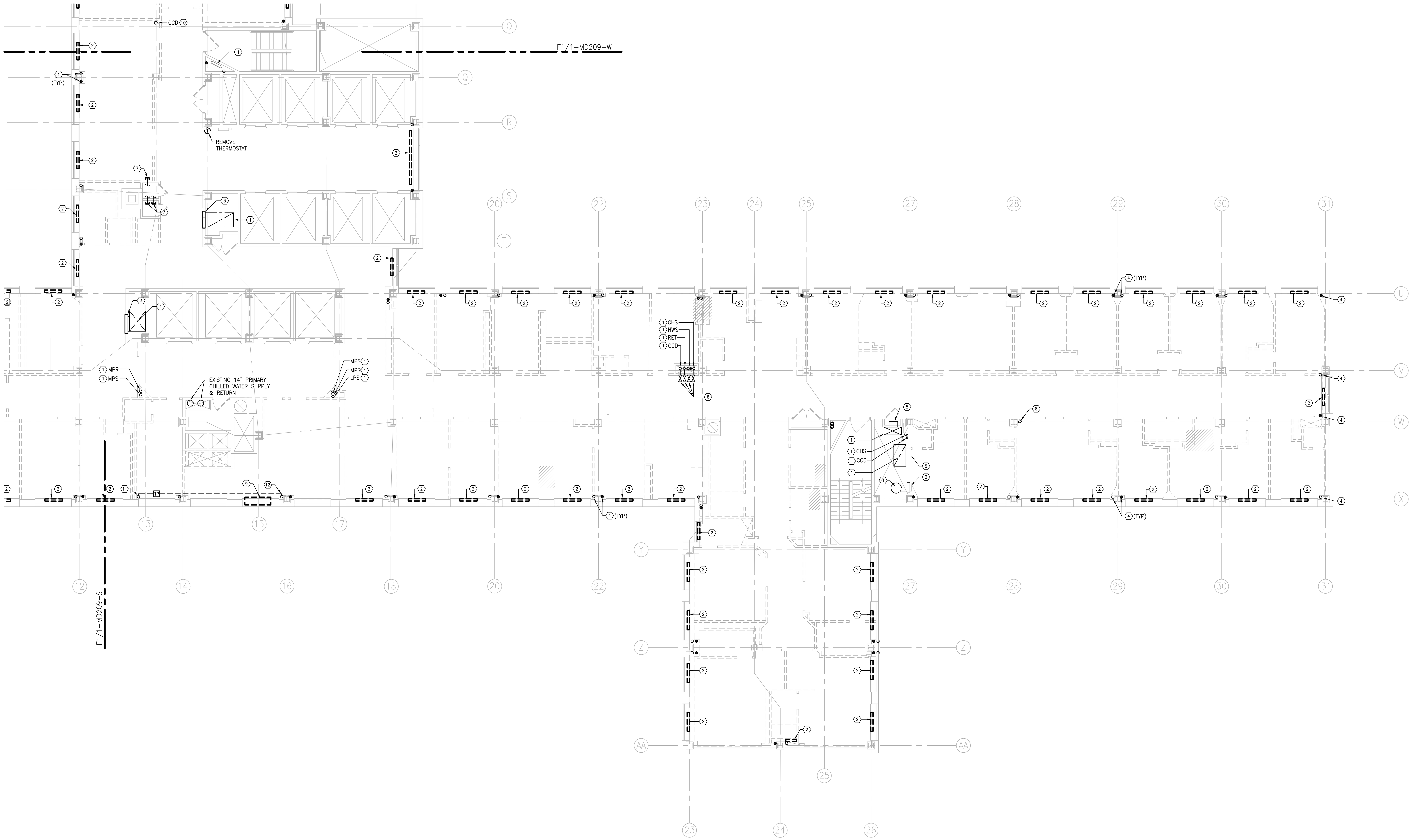

F1 MECHANICAL DEMOLITION PLAN 9TH FLOOR - NORTH

SCALE: 1/8" = 1'-0"

0 8' 16'

DEMOLITION LEGEND

MATCH LINE	F1/1-MDXXX-X / F1/1-MDXXX-X
SPECIFIC DEMOLITION NOTE	◄— 1
EXISTING DUCTWORK & PIPING TO REMAIN	— - — - —
EXISTING DUCTWORK & PIPING TO BE REMOVED	- - - - - -

GENERAL DEMOLITION NOTES

1. PROVIDE TEMPORARY CAPS ON ALL REMAINING BRANCH PIPING AND DUCTWORK UNTIL FINAL CONNECTIONS ARE MADE.

PHASING NOTES

1. DUE TO SEASONAL HEATING REQUIREMENTS, CONVECTOR REMOVAL IS LIMITED TO BE PERFORMED BETWEEN MARCH 1ST AND NOVEMBER 30th.

SPECIFIC DEMOLITION NOTES

1. EXISTING TO REMAIN.
2. REMOVE EXISTING CONVECTOR ELEMENT, THERMOSTATIC CONTROL VALVE INCLUDING ASSOCIATED SENSOR, TRAP, AND CONTROL TUBING. PREPARE PIPING FOR NEW CONNECTION.
3. EXISTING FD TO REMAIN AND PERMANENTLY CAP.
4. EXISTING LOW PRESSURE STEAM RISERS TO REMAIN.
5. REMOVE EXISTING FD. PREPARE TO INSTALL NEW FD AND DUCT CONNECTION.
6. REMOVE EXISTING SHUTOFF VALVE AND PREPARE FOR NEW CONNECTION. COORDINATE RISER SHUTDOWN WITH OWNER.
7. CAP OPEN END DUCT.
8. REMOVE HWR RISER FROM 3" BELOW UNDERSIDE OF 10TH FLOOR SLAB DOWN TO 8TH FLOOR CEILING SPACE. PREPARE TOP END FOR NEW CONNECTION CAP BOTTOM END BELOW 9TH FLOOR SLAB.
9. REMOVE FCU. CAP PIPING AT SLAB.
10. REMOVE CCD RISER FROM 3" BELOW UNDERSIDE OF 10TH FLOOR SLAB DOWN TO 8TH FLOOR CEILING SPACE. PREPARE TOP END FOR NEW CONNECTION CAP BOTTOM END BELOW 9TH FLOOR SLAB.
11. REMOVE EXISTING LPR PIPING TO BOTTOM OF 10TH FLOOR SLAB AND PERMANENTLY CAP.
12. REMOVE EXISTING LPR PIPING TO RISER AND CAP.

BUILDING IS FULLY SPRINKLERED

Scale: 1/8"=1'-0"

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

CONSULTANTS:

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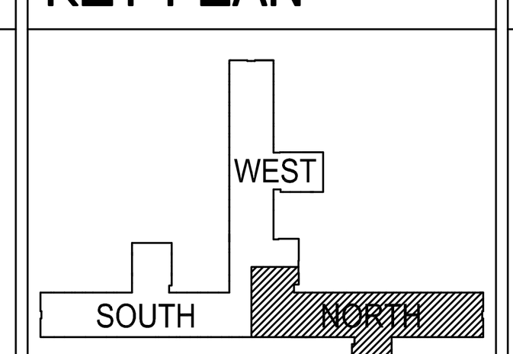
KEY PLAN:



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Drawing Title: MECHANICAL DEMOLITION PLAN 9TH FLOOR - NORTH

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date	Checked	Drawn
AUGUST 15, 2013	JB	SO

Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MD209-N

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

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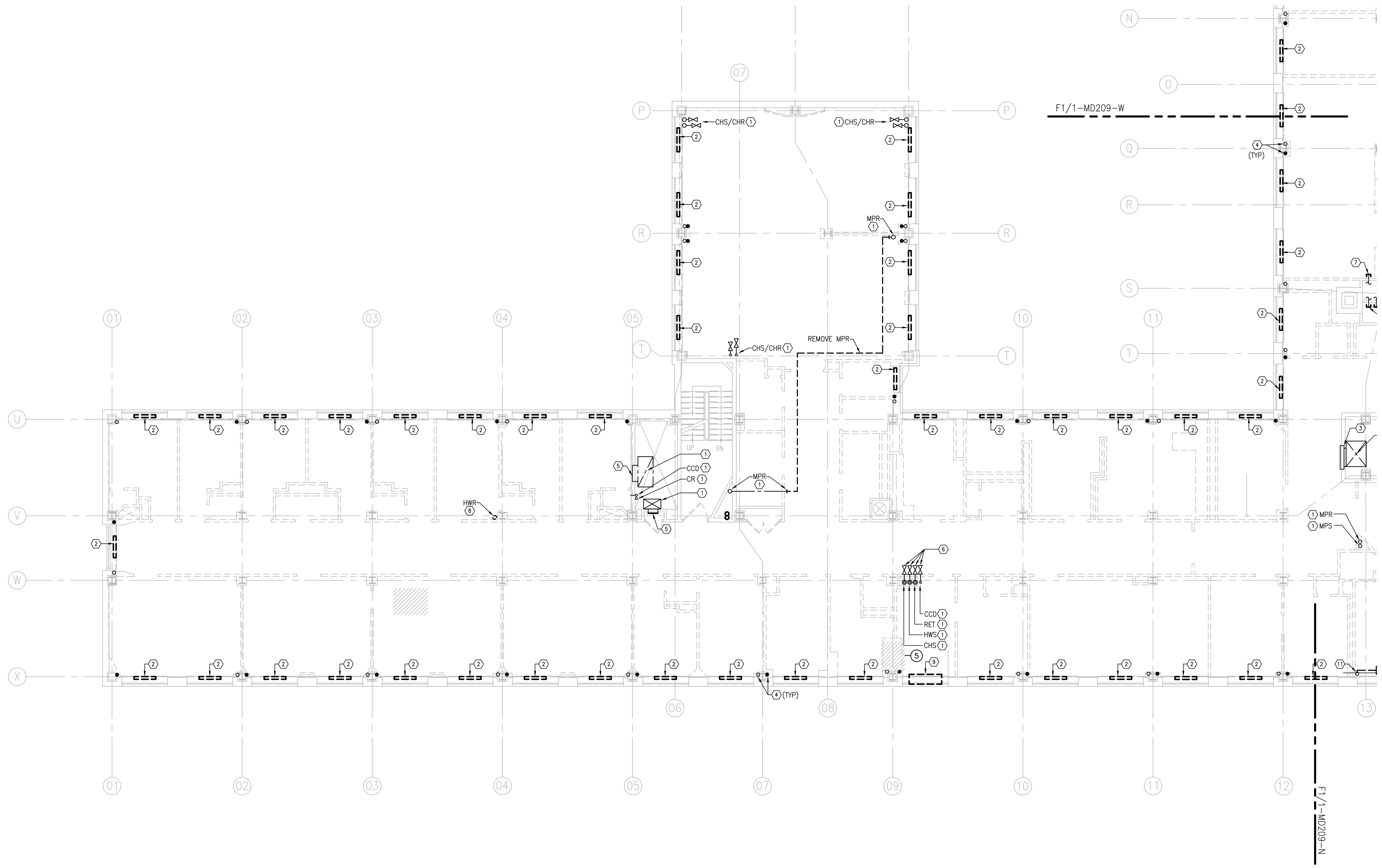

F1 MECHANICAL DEMOLITION PLAN 9TH FLOOR - SOUTH

SCALE: 1/8" = 1'-0"

DEMOLITION LEGEND

- MATCH LINE — F1/1-MDXXX-X / F1/1-MDXXX-X
- SPECIFIC DEMOLITION NOTE — ⟨1⟩
- EXISTING DUCTWORK & PIPING TO REMAIN
- EXISTING DUCTWORK & PIPING TO BE REMOVED

GENERAL DEMOLITION NOTES

1. PROVIDE TEMPORARY CAPS ON ALL REMAINING BRANCH PIPING AND DUCTWORK UNTIL FINAL CONNECTIONS ARE MADE.

PHASING NOTES

1. DUE TO SEASONAL HEATING REQUIREMENTS, CONVECTOR REMOVAL IS LIMITED TO BE PERFORMED BETWEEN MARCH 1ST AND NOVEMBER 30th.

SPECIFIC DEMOLITION NOTES

1. EXISTING TO REMAIN.
2. REMOVE EXISTING CONVECTOR ELEMENT, THERMOSTATIC CONTROL VALVE INCLUDING ASSOCIATED SENSOR, TRAP, AND CONTROL TUBING. PREPARE PIPING FOR NEW CONNECTION.
3. EXISTING FD TO REMAIN AND PERMANENTLY CAP.
4. EXISTING LOW PRESSURE STEAM RISERS TO REMAIN.
5. REMOVE EXISTING FD. PREPARE TO INSTALL NEW FD AND DUCT CONNECTION.
6. REMOVE EXISTING SHUTOFF VALVE AND PREPARE FOR NEW CONNECTION. COORDINATE RISER SHUTDOWN WITH OWNER.
7. CAP OPEN END DUCT.
8. REMOVE HWR RISER FROM 3" BELOW UNDERSIDE OF 10TH FLOOR SLAB DOWN TO 8TH FLOOR CEILING SPACE. PREPARE TOP END FOR NEW CONNECTION CAP BOTTOM END BELOW 9TH FLOOR SLAB.
9. REMOVE FCU. CAP PIPING AT SLAB.
10. REMOVE CCD RISER FROM 3" BELOW UNDERSIDE OF 10TH FLOOR SLAB DOWN TO 8TH FLOOR CEILING SPACE. PREPARE TOP END FOR NEW CONNECTION CAP BOTTOM END BELOW 9TH FLOOR SLAB.
11. REMOVE EXISTING LPR PIPING TO BOTTOM OF 10TH FLOOR SLAB AND PERMANENTLY CAP.
12. REMOVE EXISTING LPR PIPING TO RISER AND CAP.

BUILDING IS FULLY SPRINKLERED — Scale: 1/8"=1'-0"

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

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KEY PLAN: WEST / SOUTH / NORTH

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Houston ■ Los Angeles ■ Mumbai ■ New York ■ Phoenix
St. Louis ■ San Francisco ■ Shanghai ■ Toronto
Vancouver ■ Victoria ■ Washington DC

Drawing Title: MECHANICAL DEMOLITION PLAN 9TH FLOOR - SOUTH

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date: AUGUST 15, 2013 | Checked: JB | Drawn: SO

Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MD209-S

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231

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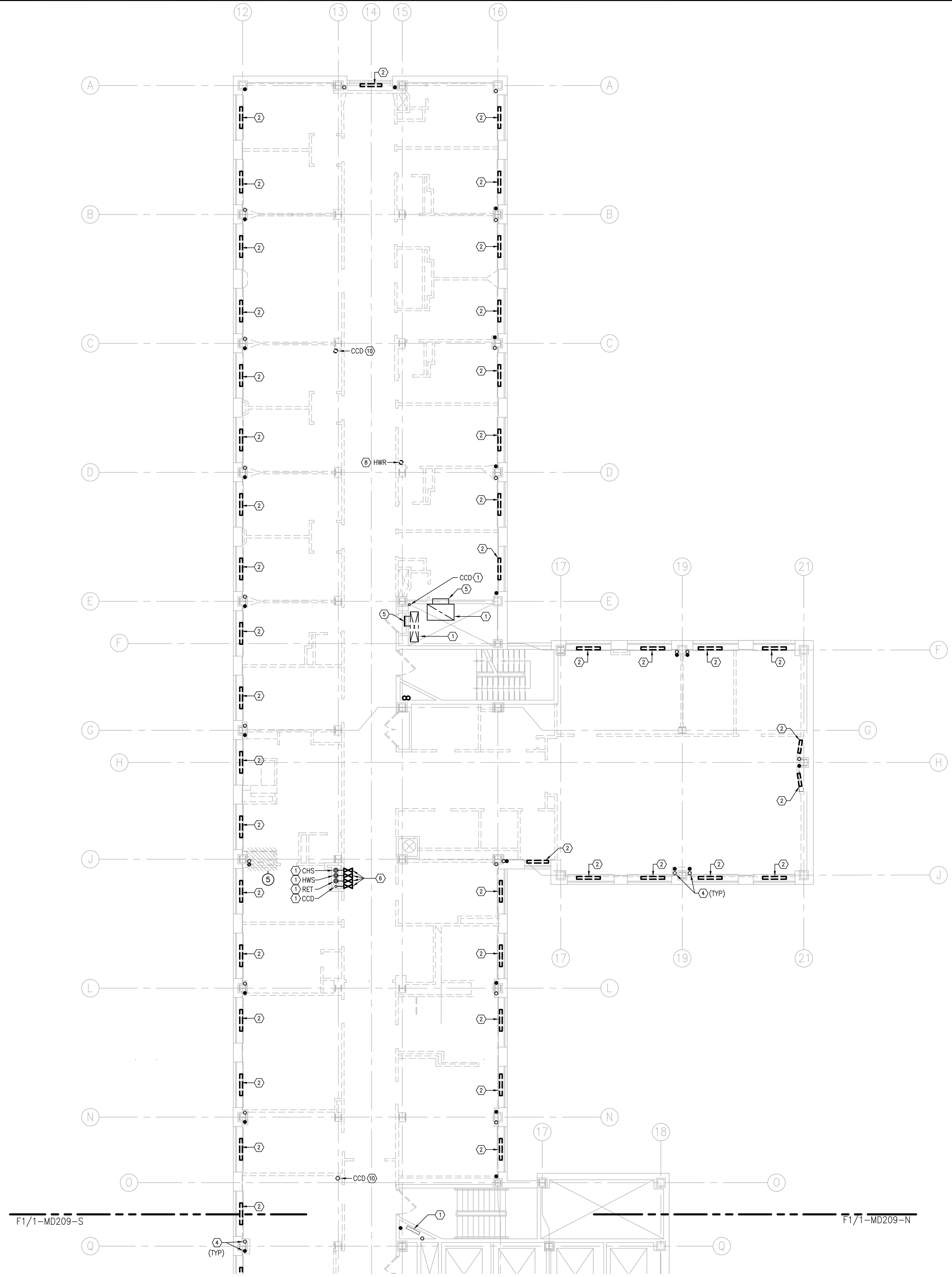

F1 MECHANICAL DEMOLITION PLAN 9TH FLOOR - WEST

SCALE: 1/8" = 1'-0"

DEMOLITION LEGEND

MATCH LINE	F1/1-MDXXX-X / F1/1-MDXXX-X
SPECIFIC DEMOLITION NOTE	⟨1⟩
EXISTING DUCTWORK & PIPING TO REMAIN	— - — - —
EXISTING DUCTWORK & PIPING TO BE REMOVED	- - - - - -

GENERAL DEMOLITION NOTES

1. PROVIDE TEMPORARY CAPS ON ALL REMAINING BRANCH PIPING AND DUCTWORK UNTIL FINAL CONNECTIONS ARE MADE.

PHASING NOTES

1. DUE TO SEASONAL HEATING REQUIREMENTS, CONVECTOR REMOVAL IS LIMITED TO BE PERFORMED BETWEEN MARCH 1ST AND NOVEMBER 30th.

SPECIFIC DEMOLITION NOTES

1. EXISTING TO REMAIN.
2. REMOVE EXISTING CONVECTOR ELEMENT, THERMOSTATIC CONTROL VALVE INCLUDING ASSOCIATED SENSOR, TRAP, AND CONTROL TUBING. PREPARE PIPING FOR NEW CONNECTION.
3. EXISTING FD TO REMAIN AND PERMANENTLY CAP.
4. EXISTING LOW PRESSURE STEAM RISERS TO REMAIN.
5. REMOVE EXISTING FD. PREPARE TO INSTALL NEW FD AND DUCT CONNECTION.
6. REMOVE EXISTING SHUTOFF VALVE AND PREPARE FOR NEW CONNECTION. COORDINATE RISER SHUTDOWN WITH OWNER.
7. CAP OPEN END DUCT.
8. REMOVE HWR RISER FROM 3" BELOW UNDERSIDE OF 10TH FLOOR SLAB DOWN TO 8TH FLOOR CEILING SPACE. PREPARE TOP END FOR NEW CONNECTION CAP BOTTOM END BELOW 9TH FLOOR SLAB.
9. REMOVE FCU. CAP PIPING AT SLAB.
10. REMOVE CCD RISER FROM 3" BELOW UNDERSIDE OF 10TH FLOOR SLAB DOWN TO 8TH FLOOR CEILING SPACE. PREPARE TOP END FOR NEW CONNECTION CAP BOTTOM END BELOW 9TH FLOOR SLAB.
11. REMOVE EXISTING LPR PIPING TO BOTTOM OF 10TH FLOOR SLAB AND PERMANENTLY CAP.
12. REMOVE EXISTING LPR PIPING TO RISER AND CAP.

BUILDING IS FULLY SPRINKLERED

Scale: 1/8"=1'-0"

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

CONSULTANTS:

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KEY PLAN: WEST / SOUTH / NORTH

ARCHITECT/ENGINEERS:

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Drawing Title	MECHANICAL DEMOLITION PLAN 9TH FLOOR - WEST
Approved: Project Director	
Project Title	VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS
Location	423 EAST 23RD STREET NEW YORK, NY 10010
Date	AUGUST 15, 2013
Checked	JB
Drawn	SO
Project Number	630PR2600
Building Number	1
Drawing Number	1-MD209-W

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

DEMOLITION LEGEND

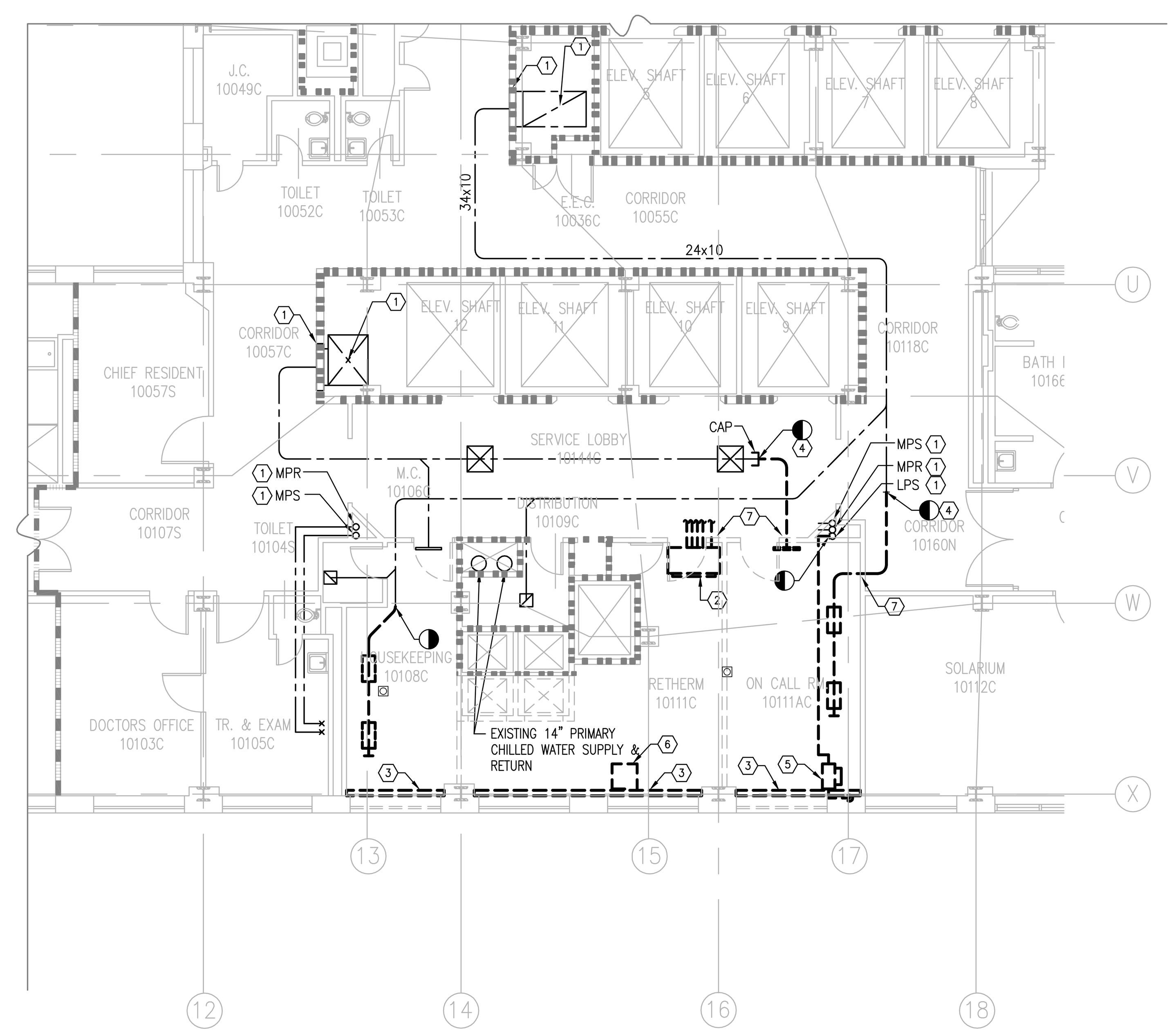
MATCH LINE	F1/1-MDXXX-X / F1/1-MDXXX-X
SPECIFIC DEMOLITION NOTE	⟨1⟩
EXISTING DUCTWORK & PIPING TO REMAIN	— - — - —
EXISTING DUCTWORK & PIPING TO BE REMOVED	- - - - - -

GENERAL DEMOLITION NOTES

1. PROVIDE TEMPORARY CAPS ON ALL REMAINING BRANCH PIPING AND DUCTWORK UNTIL FINAL CONNECTIONS ARE MADE.

SPECIFIC DEMOLITION NOTES

1. EXISTING TO REMAIN.
2. REMOVE EXISTING FAN COIL UNIT AND ASSOCIATED PIPING, CONTROLS, AND ANCILLARIES. CAP BRANCH PIPING IN CORRIDOR.
3. REMOVE EXISTING FIN RADIATION, INCLUDING ASSOCIATED SENSOR, TRAP, AND CONTROL.
4. REMOVE EXISTING DUCT TO POINT SHOWN.
5. REMOVE EXISTING UNIT HEATER AND ASSOCIATED PIPING, CONTROLS, AND ANCILLARIES. CAP BRANCH PIPING IN CORRIDOR.
6. REMOVE EXISTING PROP FAN AND ASSOCIATED CONTROLS.
7. REPAIR WALL OPENING TO MAINTAIN EXISTING FIRE RATING.



F6 MECHANICAL DEMOLITION PLAN PARTIAL - 10TH FLOOR

SCALE: 1/8" = 1'-0"

0 8' 16'

BUILDING IS FULLY SPRINKLERED

Scale: 1/8"=1'-0"

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

CONSULTANTS:

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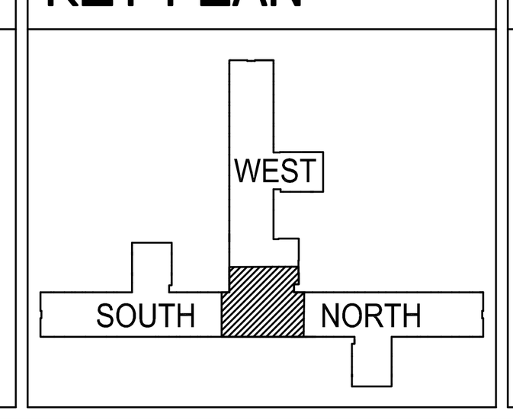
KEY PLAN:



ARCHITECT/ENGINEERS:

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Drawing Title	MECHANICAL DEMOLITION PLAN PARTIAL - 10TH FLOOR
Approved: Project Director	
Project Title	VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS
Location	423 EAST 23RD STREET NEW YORK, NY 10010
Date	AUGUST 15, 2013
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Drawn	SO
Project Number	630PR2600
Building Number	1
Drawing Number	1-MD210

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three inches = one foot; one and one half inches = one foot; one inch = one foot; three quarters inch = one foot; one half inch = one foot; three eighths inch = one foot; one quarter inch = one foot; one eighth inch = one foot

A1 MECHANICAL ABBREVIATIONS

A/E	ARCHITECT / ENGINEER
AC	AIR HANDLING UNIT
ACD	AUTOMATIC CONTROL DAMPER,MODULATING
ACD-TP	AUTOMATIC CONTROL DAMPER,TWO POSITION
AD	ACCESS DOOR
AF	AFTER FILTER
AFF	ABOVE FINISHED FLOOR
AFMD	AIR FLOW MEASURING DEVICE
AHU	AIR-HANDLING UNIT
AMP	AMPERE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
AS	AIR SEPARATOR
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
BAS	BUILDING AUTOMATIC SYSTEM (DDC)
BDD	BACKDRAFT DAMPER
BG	BOTTOM GRILLE
BHP	BRAKE HORSEPOWER
BIW	BACKWARD INCLINED WHEEL (FAN)
BR	BOTTOM REGISTER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
C	CENTIGRADE (CELCIUS)
CC	COOLING COIL
CCD	COOLING COIL CONDENSATE DRAIN
CD	CEILING DIFFUSER
CD-1	CONSTRUCTION DOCUMENTS (SUBMISSION1)
CD-2	CONSTRUCTION DOCUMENTS (SUBMISSION2)
CENT	CENTRIFUGAL
CFM	CUBIC FEET PER MINUTE
CHW	CHILLER WATER
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CI	CAST IRON
CO	CLEAN OUT
CO2	CARBON DIOXIDE
CSG	CLEAN STEAM GENERATOR
CUH	CABINET UNIT HEATER
CV	CONSTANT VOLUME
CW	COLD WATER (POTABLE)
D	DAMPER - AUTOMATIC
D-1	OUTDOOR AIR DAMPER
D-2	EXHAUST AIR DAMPER
D-3	RELIEF AIR DAMPER
Db	DECIBELS
DB	DRY-BULB TEMPERATURE
DD-1	DESIGN DEVELOPMENT (SUBMISSION1)
DD-2	DESIGN DEVELOPMENT (SUBMISSION2)
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE
DF	DIFFUSER
DIA	DIAMETER
DPR	DAMPER
DPS	DIFFERENTIAL PRESSURE SENSOR
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
ECC	ENGINEERING CONTROL CENTER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EJ	EXPANSION JOINT
EMD	END OF MAIN DRIP (STEAM)
ENT	ENTERING
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EX.	EXISTING
F	FAHRENHEIT
F&T	FLOAT AND THERMOSTATIC
F/SDPR	COMBINATION FIRE SMOKE DAMPER
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FD	FIRE DAMPER
FF	FINAL FILTER
FM	FLOW METER
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FR	FLOOR REGISTER
FS	FLOW SWITCH
FSTAT	FREEZESTAT
FT	FEET
FT-LB	FOOT-POUND
FV	FACE VELOCITY
GA	GAUGE
GAL	GALLONS
GPM	GALLONS PER MINUTE
GS	GALVANIZED STEEL
GWR	GLYCOL HOT WATER RETURN
GWS	GLYCOL HOT WATER SUPPLY
H	HUMIDIFER
HAC	HOUSEKEEPING AID CLOSET
HD	HEAD
HOA	HAND/OFF/AUTOMATIC
HP	HORSEPOWER
HSTAT	HUMIDISTAT
HTM	HUMIDIFIER TERMINAL
HVU	HEATING AND VENTILATING UNIT
HW	HOT WATER
HWP	HEATING HOT WATER PUMP
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
I/O	INPUT/OUTPUT
IAQ	INDOOR AIR QUALITY
IBT	INVERTED BUCKET TRAP
ICF	IN-LINE CENTRIFUGAL FAN
ID	INSIDE DIAMETER
IN	INCHES
IN HG	INCHES OF MERCURY
IN WC	INCH WATER COLUMN
IN WG	INCH WATER GAUGE
IN-LB	INCH-POUND
J	INTENTIALLY LEFT BLANK
kW	KILOWATT
kWh	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LF	LINEAR FOOT (FEET)
LPR	LOW PRESSURE RETURN (STEAM CONDENSATE)
LPRC	LOW PRESSURE STEAM RETURN (CLEAN)
LPS	LOW PRESSURE STEAM
LPSC	LOW PRESSURE STEAM (CLEAN)
LSD	LINEAR SLOT DIFFUSER
LVG	LEAVING
LVR	LOUVER
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	1000 BTUH
MCA	MINIMUM BRANCH CIRCUIT AMPACITY
MER	MECHANICAL EQUIPMENT ROOM
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MHP	MOTOR HORSEPOWER
MIN	MINIMUM
MPR	MEDIUM PRESSURE RETURN (STEAM CONDENSATE)
MPS	MEDIUM PRESSURE STEAM
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NPLV	NON-STANDARD PART LOAD VALUE
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OD	OUTSIDE DIAMETER
P	PUMP
PC	PUMPED CONDENSATE
PCF	POUNDS PER CUBIC FOOT (FEET)
PD	PRESSURE DROP
PF	PRE-FILTER
PG	PRESSURE GAGE
PGW	PROPYLENE GLYCOL-WATER (SOLUTION)
PHC	PREHEAT COIL
PPM	PARTS PER MILLION
PRS	PRESSURE REGULATING (VALVE) STATION
PRV	PRESSURE REGULATING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ?ABSOLUTE
PSIG	POUNDS PER SQUARE INCH ?GAGE
PSV	PRESSURE SAFETY VALVE
R/E	RETURN OR EXHAUST
RA	RETURN AIR
RDS	ROOM DATA SHEETS
REA	RELIEF AIR
RET	COMMON RETURN WATER
RG	RETURN GRILLE
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
RV	RELIEF VALVE
SA	SUPPLY AIR
SAD	SOUND ATTENUATING DEVICE
SAE	SOUND ATTENUATOR - EXHAUST
SAS	SOUND ATTENUATOR - SUPPLY
SAT	SUPPLY AIR TEMPERATURE
SCFM	STANDARD CUBIC FEET PER MINUTE
SD	SMOKE DETECTOR
SD	SUPPLY AIR DIFFUSER
SDPR	SMOKE DAMPER
SEN	SENSIBLE HEAT
SF	SUPPLY FAN
SG	SUPPLY AIR GRILLE
SH	STEAM HUMIDIFIER
SP	STATIC PRESSURE
SP GR	SPECIFIC GRAVITY
SPRV	STEAM PRESSURE REDUCING VALVE
SPS	STATIC PRESSURE SENSOR
SQ FT	SQUARE FOOT (FEET)
SR	SUPPLY AIR REGISTER
SS	STAINLESS STEEL
ST	STEAM TRAP
SWHX	STEAM TO WATER HEAT EXCHANGER
T & PCV	TEMPERATURE AND PRESSURE CONTROL VALVE
TAB	TESTING, ADJUSTING, BALANCE
TD	TEMPERATURE DIFFERENCE
TP	TRAP
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TU	TERMINAL UNIT
UL	UNDERWRITERS LABORATORY
V	VALVE
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER (MANUAL OPPOSED BLADE)
VFD	VARIABLE FREQUENCY DRIVE
VA	VETERANS ADMINISTRATION
VI	VIBRATION ISOLATOR
VSD	VARIABLE SPEED DRIVE
W	WATTS
Wb	WET-BULB (TEMPERATURE)
WG	WATER GAGE
WPD	WATER SIDE PRESSURE DROP
YR	YEAR

A5 DRAWING SYMBOLS

- 2 / 1-MH101 — DETAIL NUMBER; DRAWING NUMBER WHERE DRAWN
- 1 / 1-MH101 — SECTION LETTER; DRAWING NUMBER WHERE SHOWN
- SF 3 — EQUIPMENT ABBREVIATION (SUPPLY FAN); SUPPLY FAN NO. 3 (ALL EQUIPMENT IS IN BUILDING NO. 1); TYPICAL UNIT NO.
- TU-I-I — ITEM (TERMINAL UNIT SHOWN); ITEM NUMBER (TERMINAL UNIT NO. 1); SERVED BY AIR HANDLER UNIT NO. 1

B5 GENERAL NOTES

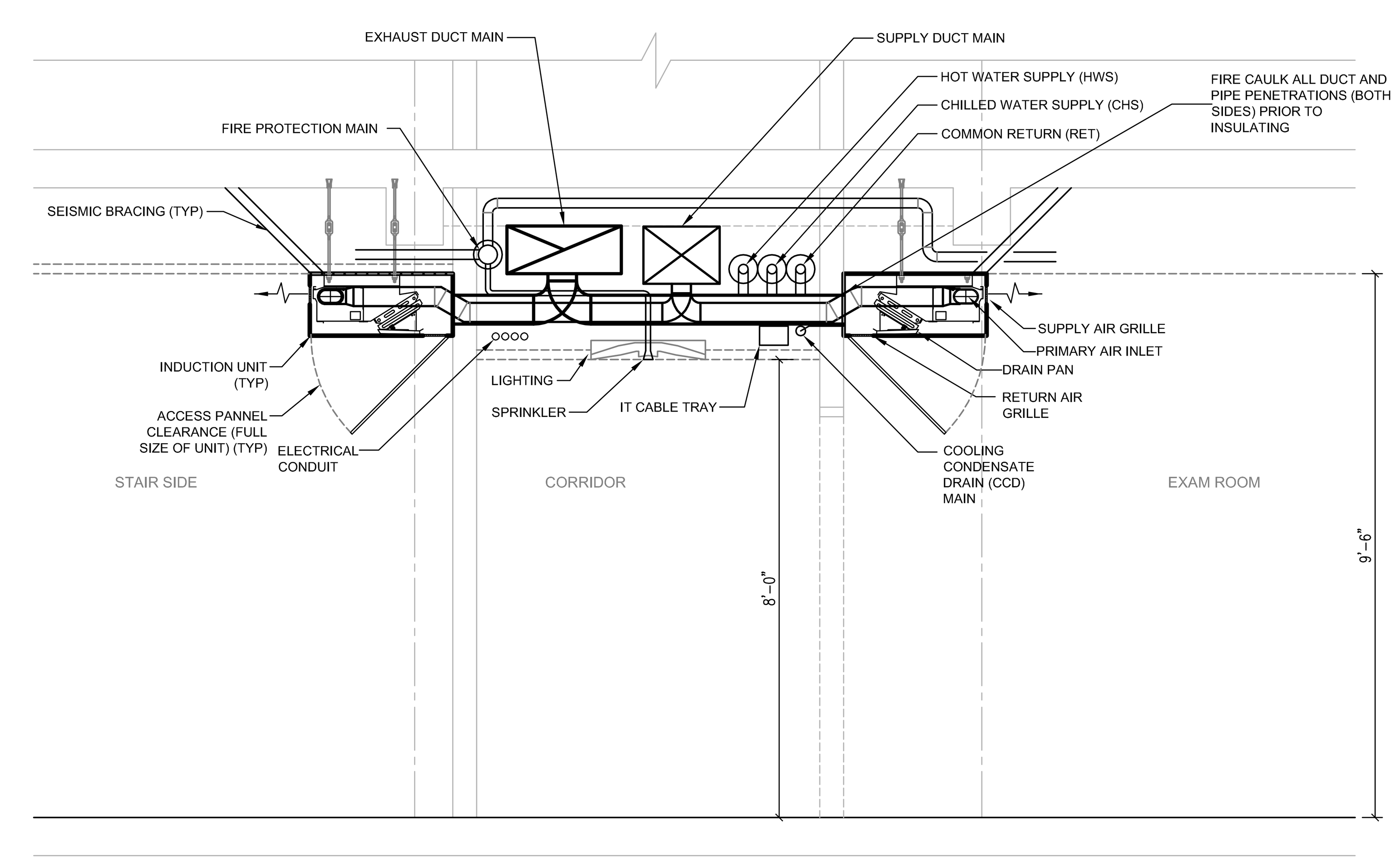
1. ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN A FURRED CHASE OR ABOVE THE CEILING.
2. THE FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED. DUCT SIZES ARE NET INSIDE DIMENSIONS.
3. ACCESS PANELS IN HARD WALLS AND SUSPENDED CEILINGS ARE REQUIRED FOR ALL VALVES, TRAPS, DAMPERS, CLEANOUTS, CONTROLS, ETC. ACCESS PANELS SHALL BE FURNISHED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS.
4. TOTAL STATIC PRESSURE NOTED IN THE SCHEDULES INCLUDES DUCT SYSTEM, TERMINAL UNITS, FILTERS, COILS, ETC.
5. FOR TYPICAL STEAM AND WATER PIPING CONNECTIONS TO EQUIPMENT, SEE STANDARD EQUIPMENT DETAILS.
6. DIFFUSER, REGISTER AND GRILLE SIZES SHOWN ON FLOOR PLANS ARE NECK SIZES.
7. WATER PIPE CONNECTIONS TO AIR HEATING AND COOLING COILS SHALL BE MADE TO PROVIDE COUNTER FLOW BETWEEN WATER AND AIR.
8. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF CEILING DIFFUSERS, REGISTERS, AND GRILLES.
9. SEISMIC PROVISIONS ARE REQUIRED – SEE SPECIFICATIONS.
10. ALL PRESSURES LISTED ARE GAGE PRESSURE UNLESS OTHERWISE NOTED.
11. REFER TO "ROOM AIR BALANCE SCHEDULE" (IN PROJECT MANUAL) FOR SPECIFIC ROOM AIR CHANGE RATES.

A6 DUCTWORK SYMBOLS

- UP / DN — SUPPLY DUCT (UP & DOWN)
- UP / DN — EXHAUST DUCT (UP & DOWN)
- UP / DN — RETURN DUCT (UP & DOWN)
- SQUARE 4-WAY CEILING DIFFUSERS
- LINEAR SLOT DIFFUSER
- SUPPLY TOP REGISTER OR GRILLE (WALL TYPE)
- EXHAUST OR RETURN CEILING REGISTER OR GRILLE
- EXHAUST OR RETURN BOTTOM REGISTER OR GRILLE (WALL TYPE)
- EXHAUST OR RETURN REGISTER OR TOP GRILLE (WALL TYPE)
- VANED ELBOW & AIR SPLIT TYPE DUCT TAKE-OFF
- R — INCLINED RISE, IN DIRECTION OF AIR FLOW
- D — INCLINED DROP, IN DIRECTION OF AIR FLOW
- FC — FLEXIBLE CONNECTION, EQUIPMENT, VIBRATION, OR SEISMIC
- VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES EVEN IF SYMBOL IS MISSING)
- STANDARD RADIUS ELBOW (LONG RADIUS)
- 10x8 — NEW DUCT (INSIDE DIMENSIONS: WIDTH x DEPTH)
- OR — EXISTING DUCT TO REMAIN
- EXISTING DUCT TO BE REMOVED
- VD — MANUAL VOLUME DAMPER
- FD — FIRE DAMPER
- F/S DPR — COMBINATION FIRE/SMOKE DAMPER
- 2 1 / 4 / 1/2 — POINT OF CHANGE IN DUCT CONSTRUCTION BY STATIC PRESSURE CLASS. THE NUMBER ASSIGNS PRESSURE CLASS (IN. OF WATER) WHICH WILL ACCOMMODATE MAXIMUM OPERATING PRESSURE IN THE DUCT SUBSECTION. THE SYMBOL CONTINUES THE ASSIGNMENT UNTIL THE DUCT TERMINATES OR ANOTHER SYMBOL APPEARS. A "N" SUPERSCRIPT INDICATES NEGATIVE PRESSURE.
- AUTOMATIC CONTROL DAMPER MODULATING
- AUTOMATIC CONTROL DAMPER TWO POSITION
- MANUAL SPLITTER DAMPER
- 45° SUPPLY / 45° RETURN — STANDARD BRANCH SUPPLY OR RETURN, NO SPLITTER (45° TAP)
- DUCT MOUNTED COIL (HOT WATER OR STEAM COIL)
- CONVECTOR OR RADIATOR (RECESSED)
- CONVECTOR OR RADIATOR (WALL HUNG)
- TERMINAL UNIT WITH REHEAT COIL
- TERMINAL UNIT WITHOUT REHEAT COIL

D6 LEVEL 9 ABOVE CEILING COORDINATION DIAGRAM

SCALE: 1/2" = 1'-0"



BUILDING IS FULLY SPRINKLERED

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

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Drawing Title: MECHANICAL NOTES, SYMBOLS & ABBREVIATIONS

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date: AUGUST 15, 2013 | Checked: JB | Drawn: SO

Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MH001

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

A1 PIPING SYMBOLS

- RET — COMMON RETURN
- HPS — HIGH PRESSURE STEAM (60 PSIG AND ABOVE)
- HPR — HIGH PRESSURE STEAM CONDENSATE RETURN
- MPS — MEDIUM PRESSURE STEAM (16 PSIG THRU 59 PSIG)
- MPR — MEDIUM PRESSURE STEAM CONDENSATE RETURN
- LPS — LOW PRESSURE STEAM (15 PSIG AND BELOW)
- LPR — LOW PRESSURE STEAM CONDENSATE RETURN
- PC — CONDENSATE PUMP DISCHARGE
- GHS — GLYCOL–WATER HEATING SUPPLY
- GHR — GLYCOL–WATER HEATING RETURN
- CHS — CHILLED WATER SUPPLY
- HWS — HEATING HOT WATER SUPPLY
- V — VENT LINE
- X — EXISTING PIPE TO BE REMOVED
- CW — COLD WATER (CITY WATER)
- HW — HOT WATER
- DIRECTION OF PIPE PITCH (DOWN)
- DIRECTION OF FLOW
- ANCHOR
- REDUCER OR INCREASER
- ECCENTRIC REDUCER
- TOP CONNECTION, 45° OR 90°
- BOTTOM CONNECTION, 45° OR 90°
- SIDE CONNECTION
- CAPPED OUTLET
- RISE OR DROP IN PIPE
- UNION
- PIPE UP
- PIPE DOWN
- INVERTED BUCKET TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
- FLOAT & THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
- THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
- THERMOMETER
- PRESSURE GAGE
- FE — FLOW ELEMENT
- TEST PLUG (PRESSURE/TEMPERATURE)
- AV — AUTOMATIC AIR VENT
- MV — MANUAL AIR VENT
- QUICK–COUPLE HOSE CONNECTOR
- CONNECT NEW PIPE TO EXISTING PIPE
- LIMIT OF DEMOLITION

A3 VALVE SYMBOLS

- GATE VALVE – THREADED/FLANGED
- GLOBE VALVE – THREADED/FLANGED
- GATE VALVE WITH 3/4" HOSE ADAPTER
- CHECK VALVE
- WYE STRAINER (WITH BALL VALVE & HOSE CONNECTION)
- WYE STRAINER WITH VALVED DRAIN AND QUICK–COUPLE HOSE CONNECTOR
- FLEXIBLE CONNECTION
- ANGLE GLOBE VALVE
- BUTTERFLY VALVE
- BALL VALVE
- MODULATING CONTROL VALVE
- MODULATING CONTROL BUTTERFLY VALVE
- TWO POSITION CONTROL VALVE
- THREE–WAY MODULATING CONTROL VALVE
- THREE–WAY TWO POSITION CONTROL VALVE
- PRESSURE REGULATING VALVE
- PRESSURE SAFETY VALVE
- AUTOMATIC BALANCING CONTROL VALVE
- WATER BALANCE DEVICE
- CIRCUIT SETTER VALVE
- GATE VALVE WITH GLOBE–VALVED BYPASS
- PLUG VALVE
- CONTROL VALVE (CV) – FLOAT–OPERATED
- PRESSURE REDUCING VALVE (PRV)
- LC — WATER LEVEL CONTROLLER
- M — FLOW METER

A5 CONTROLS SYMBOLS-1

- T — ROOM TEMPERATURE SENSOR/TRANSMITTER – WALL MOUNT
- T — THERMO–MECHANICAL THERMOSTAT (CONVECTOR)
- M — ROOM HUMIDISTAT (MOISTURE)/TRANSMITTER – WALL MOUNT
- TT — TEMPERATURE TRANSMITTER
- TT — TEMPERATURE TRANSMITTER, AVERAGING ELEMENT
- MT — MOISTURE (HUMIDITY) TRANSMITTER
- PT — PRESSURE TRANSMITTER
- SPS — STATIC PRESSURE SENSOR
- FT — FLOW TRANSMITTER
- IT — CURRENT TRANSMITTER
- SD — SMOKE DETECTOR
- PDT — PRESSURE DIFFERENTIAL TRANSMITTER
- PDS — PRESSURE DIFFERENTIAL SWITCH
- HS — HAND SWITCH (HAND–OFF–AUTO SWITCH)
- ZC — VALVE OR DAMPER POSITION CONTROLLER
- TSL — TEMPERATURE SWITCH, LOW (FREEZESTAT)
- TSH — TEMPERATURE SWITCH, HIGH
- LC — LEVEL CONTROLLER
- LT — LEVEL TRANSMITTER
- PSH — PRESSURE SWITCH HIGH
- PSL — PRESSURE SWITCH LOW
- LTCP — LOCAL TEMPERATURE CONTROL PANEL
- HVAC — HVAC CONTROL PANEL
- VSMC — VARIABLE SPEED MOTOR CONTROLLER
- ECC — INTEGRATE CONTROL POINT ON REMOTE GRAPHICS WORKSTATION AT ENERGY CONTROL CENTER
- TC — TEMPERATURE CONTROLLER. SEE SEQUENCE OF OPERATION
- PC — PRESSURE CONTROLLER. SEE SEQUENCE OF OPERATION
- SC — SPEED CONTROLLER. SEE SEQUENCE OF OPERATION
- FC — FLOW CONTROLLER. SEE SEQUENCE OF OPERATION
- FSH — FLOW SWITCH HIGH
- FSL — FLOW SWITCH LOW
- TEMPERATURE SENSING ELEMENT FOR TRANSMITTING TEMPERATURE TO EMCS (PROVIDE 12 INCHES MINIMUM LENGTH IN DUCT WHEN SPACE PERMITS.)
- A — SENSOR WITH AVERAGING ELEMENT TO TRANSMIT TEMPERATURE TO EMCS
- MOTOR STARTER
- M — ELECTRIC OPERATED CONTROL DAMPER/OR VALVE

A7 CONTROLS SYMBOLS-2

- EAH — EXHAUST AIR HUMIDITY
- PC — ATU/ CONTROLLER
- AFS — AIR FLOW SWITCH
- HHL — HUMIDITY HIGH LIMIT
- TE — THERMOSTAT/TEMPERATURE SENSOR
- FE — FLOW ELEMENT
- CS — CURRENT SENSOR
- SST — START STOP
- ALM — ALARM
- STA — STATUS

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

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Drawing Title: MECHANICAL SYMBOLS

Approved: Project Director:

Project Title: VA NY HARBOR HEALTHCARE SYSTEM
MANHATTAN VAMC - BUILDING 1
9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET
NEW YORK, NY 10010

Date	Checked	Drawn
AUGUST 15, 2013	JB	SO

BUILDING IS FULLY SPRINKLERED

Project Number: 630PR2600
Building Number: 1
Drawing Number: 1-MH002

Office of Construction & Facilities Management
VA U.S. Department of Veterans Affairs

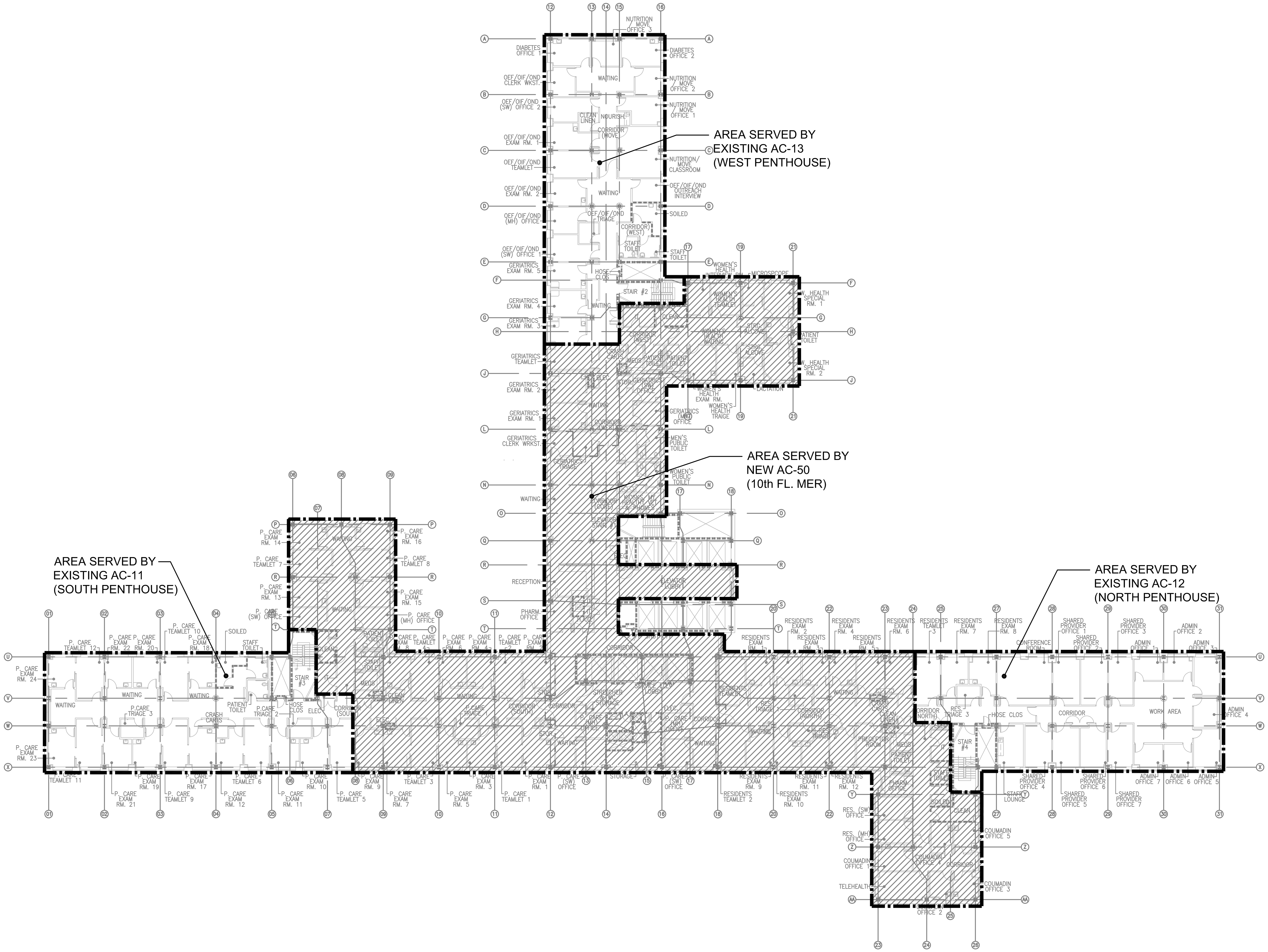
VA FORM 08–6231

CONSTRUCTION PLAN LEGEND

AC ZONING LINE

SERVED BY EXISTING 1-AC-11, 12, 13

SERVED BY NEW 1-AC-50



F1 MECHANICAL AHU ZONING PLAN 9TH FLOOR

SCALE: 1/16" = 1'-0"

0 16' 32'

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BUILDING IS FULLY SPRINKLERED

Scale: 1/16"=1'-0"

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

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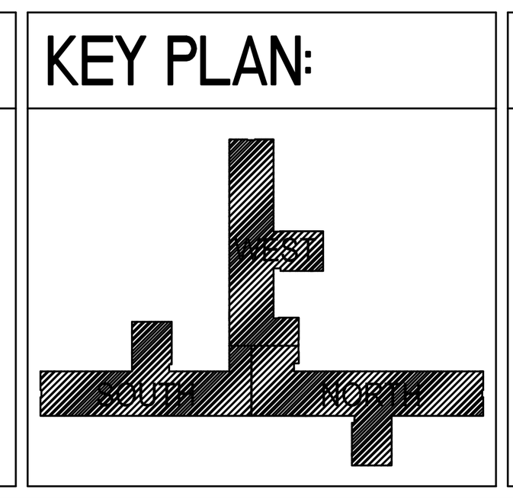
KEY PLAN:



ARCHITECT/ENGINEERS:

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Drawing Title: MECHANICAL AHU ZONING PLAN 9TH FLOOR

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date: AUGUST 15, 2013 | Checked: JB | Drawn: JRC

Project Number: 630PR2600

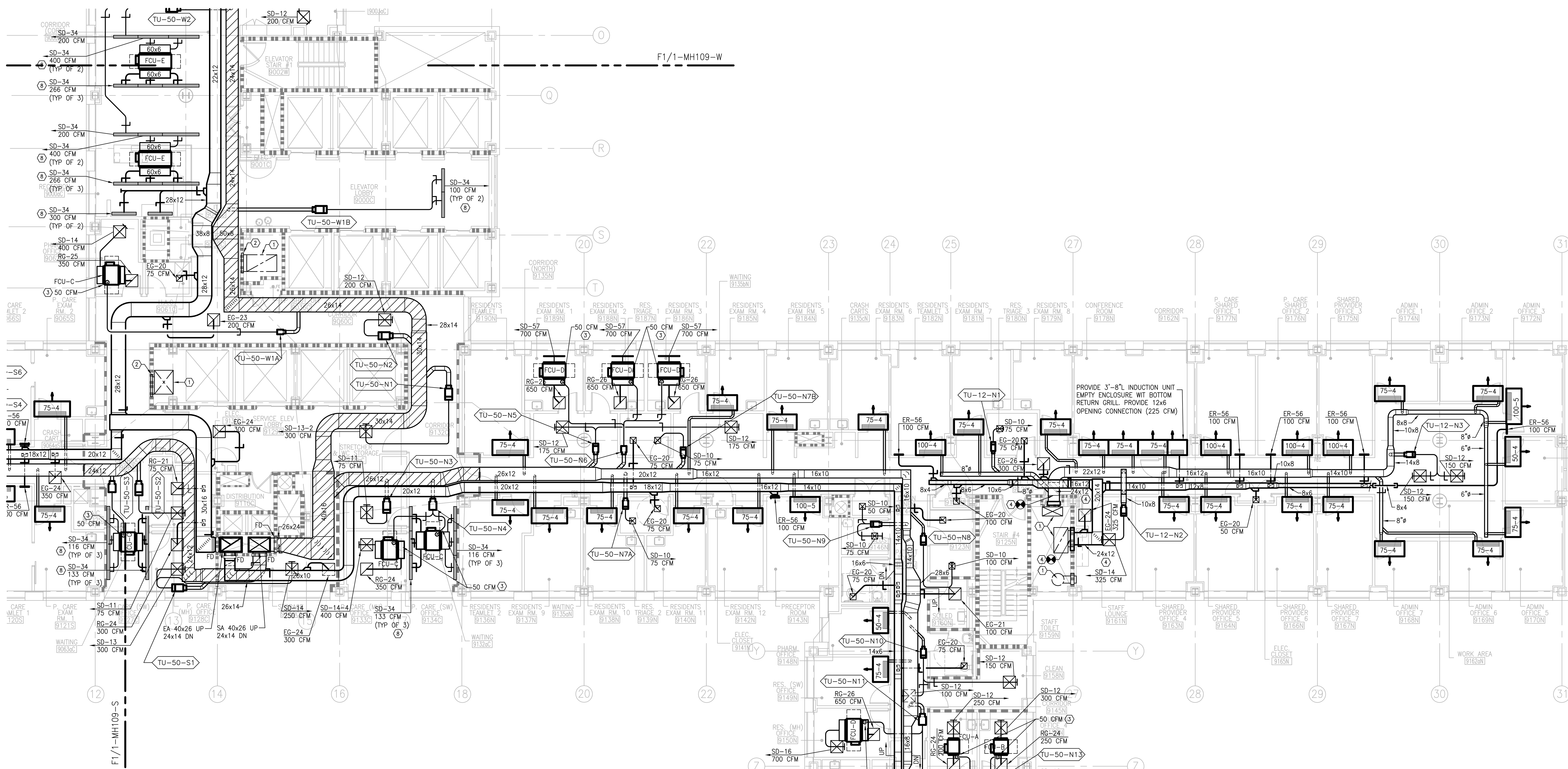
Building Number: 1

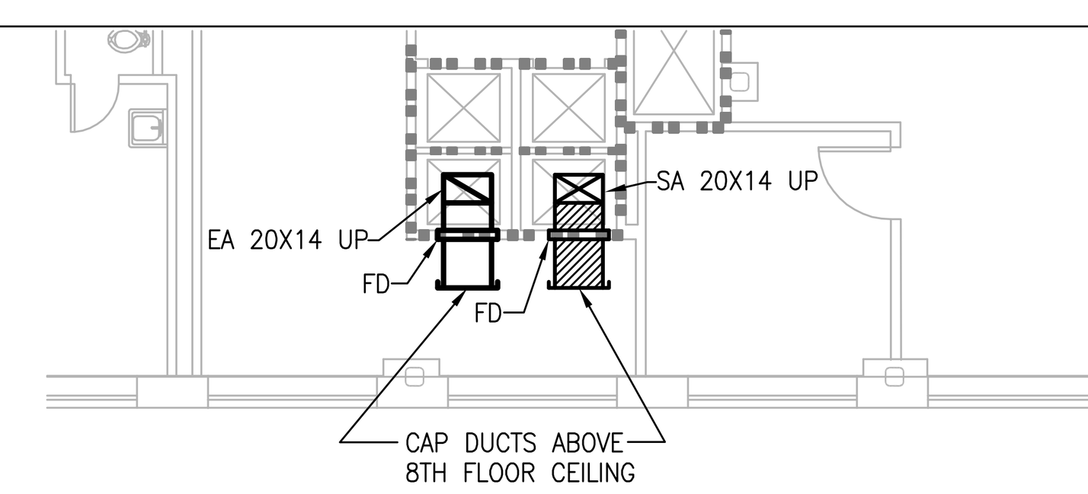
Drawing Number: 1-MH109

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231





E1 MECHANICAL DUCTWORK PARTIAL PLAN 8TH FLOOR - NORTH

SCALE: 1/8" = 1'-0"

F1 MECHANICAL DUCTWORK PLAN 9TH FLOOR - NORTH

SCALE: 1/8" = 1'-0"

PARTITION FIRE RATING LEGEND

- 1 HOUR FIRE
- SMOKE BARRIER (1 HOUR FIRE)
- 2 HOUR FIRE BARRIER

CONSTRUCTION PLAN LEGEND

- MATCH LINE — F1/1-MXXXX-X / F1/1-MXXXX-X
- SPECIFIC CONSTRUCTION NOTE — (1)
- NEW SUPPLY CEILING DIFFUSER — SD-XX XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW)
- NEW RETURN CEILING REGISTER — RG-XX XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW)
- NEW EXHAUST CEILING REGISTER — EG-XX XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW)
- NEW WALL REGISTER — ER-XX XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW)
- NEW LINEAR SLOT DIFFUSER — SD-XX XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW FOR ENTIRE LENGTH)

NEW FAN COIL UNIT (CONCEALED)

FCU-A — FAN COIL UNIT; UNIT DESIGNATION

NEW INDUCTION UNIT (EXPOSED)

XXX-X — RETURN GRILL; PRIMARY AIR (CFM); UNIT SIZE

* SEE 1-MH602/D5 FOR COOLING AND HEATING CAPACITY.

GENERAL CONSTRUCTION NOTES

1. PRIMARY AIR DUCT CONNECTION TO EACH INDUCTION UNIT SHALL BE 4"ø UNLESS NOTED OTHERWISE.
2. ALL SUPPLY DIFFUSER AIR FLOW PATTERNS ARE 4-WAY UNLESS NOTED OTHERWISE.
3. FIRE CAULK ALL DUCT AND PIPE PENETRATIONS OF CORRIDOR WALLS AND RATED WALLS.
4. ALL HATCHED SUPPLY DUCTWORK SHALL BE 5" DUCT PRESSURE CLASS, ALL OTHER SUPPLY DUCTWORK SERVING DEVICES ON THIS FLOOR SHALL BE 4" DUCT PRESSURE CLASS.
5. ALL EXHAUST DUCTWORK SERVING DEVICES ON THIS FLOOR SHALL BE 2" DUCT PRESSURE CLASS.
6. COORDINATE INDUCTION UNIT PIPING/DUCT CONNECTION WITH FLOOR PLAN.
7. REBALANCE EXISTING AIR SYSTEMS PER CFM VALUES ON CONSTRUCTION PLAN.

SPECIFIC CONSTRUCTION NOTES

1. EXISTING TO REMAIN.
2. EXISTING FD TO REMAIN. PERMANENTLY CAP AND RE-BALANCE EXISTING AIR SYSTEM.
3. BALANCE VENTILATION SUPPLY INTO FCU OA INTAKE TO INDICATED FLOW RATE.
4. PROVIDE DUCT TRANSITION, FD AND ACCESS DOOR.
5. REDUCE THIS CABINET SIZE TO FIT SPACE AVAILABLE.
6. INCREASE THIS CABINET LENGTH TO ALIGN BOTH CABINET FACES.
7. AC-50 SUPPLY DUCT STATIC PRESSURE SENSOR LOCATION.
8. EXTEND LINEAR DEVICE TO ALIGN WITH ARCHITECTURAL RCP. BLANK-OFF BACKSIDE OF INACTIVE SEGMENTS.
9. PROVIDE DUCT TRANSITION TO ROUTE DUCT ABOVE EXISTING SANITARY MAIN.

BUILDING IS FULLY SPRINKLERED — Scale: 1/8"=1'-0"

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

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KEY PLAN: WEST, SOUTH, NORTH

ARCHITECT/ENGINEERS:

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Drawing Title: MECHANICAL DUCTWORK PLAN 9TH FLOOR - NORTH

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date	Checked	Drawn
AUGUST 15, 2013	JB	SO

Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MH109-N

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

PARTITION FIRE RATING LEGEND

- 1 HOUR FIRE
- SMOKE BARRIER (1 HOUR FIRE)
- 2 HOUR FIRE BARRIER

CONSTRUCTION PLAN LEGEND

- MATCH LINE — F1/1-MXXXX-X / F1/1-MXXXX-X
- SPECIFIC CONSTRUCTION NOTE — (1)
- NEW SUPPLY CEILING DIFFUSER — SD-XX / XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW)
- NEW RETURN CEILING REGISTER — RG-XX / XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW)
- NEW EXHAUST CEILING REGISTER — EG-XX / XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW)
- NEW WALL REGISTER — ER-XX / XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW)
- NEW LINEAR SLOT DIFFUSER — SD-XX / XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW FOR ENTIRE LENGTH)

NEW FAN COIL UNIT (CONCEALED)

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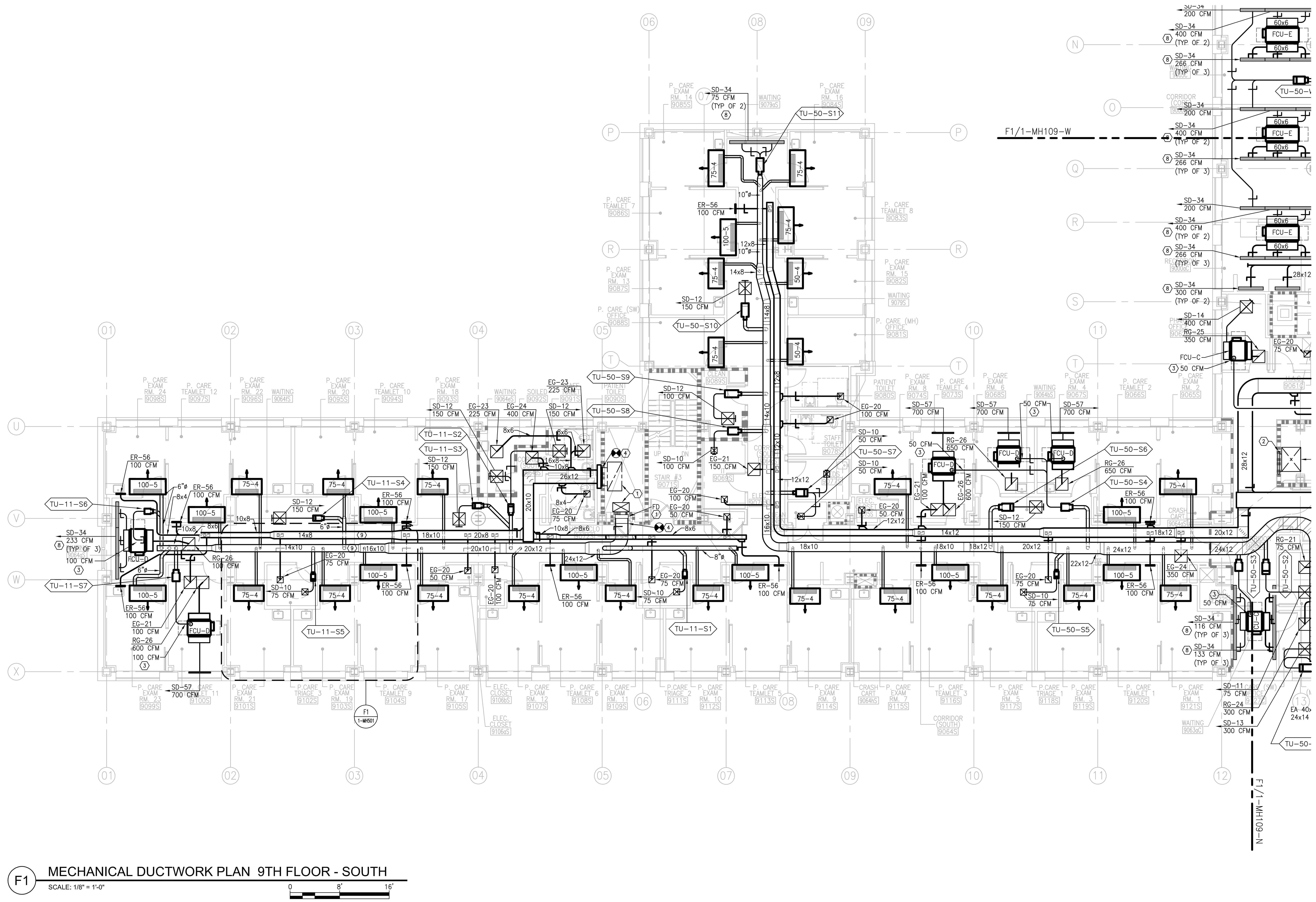

F1 MECHANICAL DUCTWORK PLAN 9TH FLOOR - SOUTH

SCALE: 1/8" = 1'-0"

GENERAL CONSTRUCTION NOTES

1. PRIMARY AIR DUCT CONNECTION TO EACH INDUCTION UNIT SHALL BE 4"ø UNLESS NOTED OTHERWISE.
2. ALL SUPPLY DIFFUSER AIR FLOW PATTERNS ARE 4-WAY UNLESS NOTED OTHERWISE.
3. FIRE CAULK ALL DUCT AND PIPE PENETRATIONS OF CORRIDOR WALLS AND RATED WALLS.
4. ALL HATCHED SUPPLY DUCTWORK SHALL BE 5" DUCT PRESSURE CLASS, ALL OTHER SUPPLY DUCTWORK SERVING DEVICES ON THIS FLOOR SHALL BE 4" DUCT PRESSURE CLASS.
5. ALL EXHAUST DUCTWORK SERVING DEVICES ON THIS FLOOR SHALL BE 2" DUCT PRESSURE CLASS.
6. COORDINATE INDUCTION UNIT PIPING/DUCT CONNECTION WITH FLOOR PLAN.
7. REBALANCE EXISTING AIR SYSTEMS PER CFM VALUES ON CONSTRUCTION PLAN.

SPECIFIC CONSTRUCTION NOTES

1. EXISTING TO REMAIN.
2. EXISTING FD TO REMAIN. PERMANENTLY CAP AND RE-BALANCE EXISTING AIR SYSTEM.
3. BALANCE VENTILATION SUPPLY INTO FCU OA INTAKE TO INDICATED FLOW RATE.
4. PROVIDE DUCT TRANSITION, FD AND ACCESS DOOR.
5. REDUCE THIS CABINET SIZE TO FIT SPACE AVAILABLE.
6. INCREASE THIS CABINET LENGTH TO ALIGN BOTH CABINET FACES.
7. AC-50 SUPPLY DUCT STATIC PRESSURE SENSOR LOCATION.
8. EXTEND LINEAR DEVICE TO ALIGN WITH ARCHITECTURAL RCP. BLANK-OFF BACKSIDE OF INACTIVE SEGMENTS.
9. PROVIDE DUCT TRANSITION TO ROUTE DUCT ABOVE EXISTING SANITARY MAIN.

BUILDING IS FULLY SPRINKLERED — Scale: 1/8"=1'-0"

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

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Drawing Title: MECHANICAL DUCTWORK PLAN 9TH FLOOR - SOUTH

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date: AUGUST 15, 2013 | Checked: JB | Drawn: SO

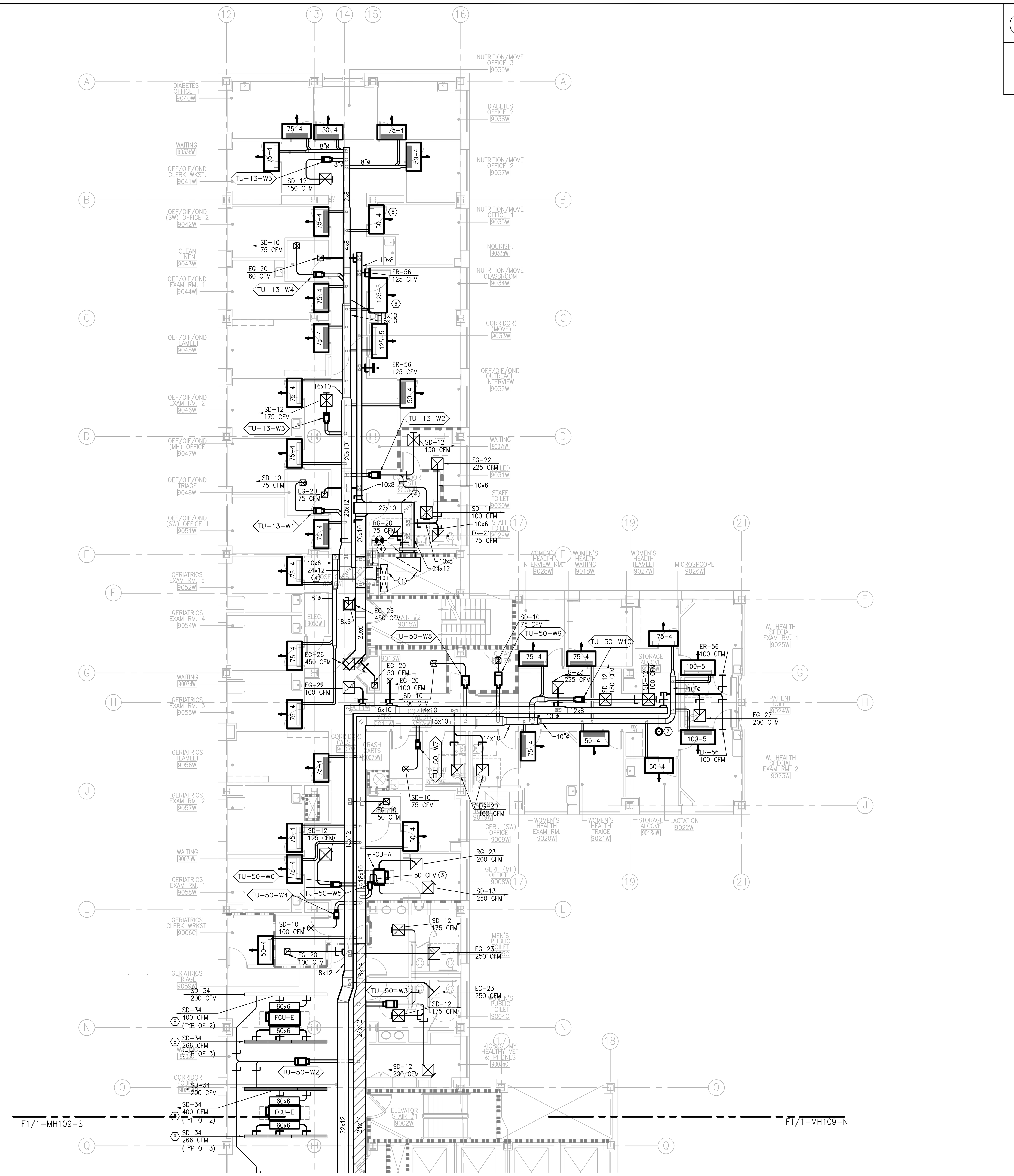
Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MH109-S

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs



F1 MECHANICAL DUCTWORK PLAN 9TH FLOOR - WEST

SCALE: 1/8" = 1'-0"

PARTITION FIRE RATING LEGEND

- 1 HOUR FIRE
- SMOKE BARRIER (1 HOUR FIRE)
- 2 HOUR FIRE BARRIER

CONSTRUCTION PLAN LEGEND

- MATCH LINE — F1/1-MXXXX-X
- SPECIFIC CONSTRUCTION NOTE
- NEW SUPPLY CEILING DIFFUSER — SD-XX XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW)
- NEW RETURN CEILING REGISTER — RG-XX XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW)
- NEW EXHAUST CEILING REGISTER — EG-XX XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW)
- NEW WALL REGISTER — ER-XX XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW)
- NEW LINEAR SLOT DIFFUSER — SD-XX XXX CFM (DEVICE TYPE SEE SCHEDULE; AIRFLOW FOR ENTIRE LENGTH)

NEW FAN COIL UNIT (CONCEALED)

FCU-A — FAN COIL UNIT; UNIT DESIGNATION

NEW INDUCTION UNIT (EXPOSED)

XXX-X — RETURN GRILL; PRIMARY AIR (CFM); UNIT SIZE

* SEE 1-MH602/D5 FOR COOLING AND HEATING CAPACITY.

GENERAL CONSTRUCTION NOTES

1. PRIMARY AIR DUCT CONNECTION TO EACH INDUCTION UNIT SHALL BE 4"ø UNLESS NOTED OTHERWISE.
2. ALL SUPPLY DIFFUSER AIR FLOW PATTERNS ARE 4-WAY UNLESS NOTED OTHERWISE.
3. FIRE CAULK ALL DUCT AND PIPE PENETRATIONS OF CORRIDOR WALLS AND RATED WALLS.
4. ALL HATCHED SUPPLY DUCTWORK SHALL BE 5" DUCT PRESSURE CLASS, ALL OTHER SUPPLY DUCTWORK SERVING DEVICES ON THIS FLOOR SHALL BE 4" DUCT PRESSURE CLASS.
5. ALL EXHAUST DUCTWORK SERVING DEVICES ON THIS FLOOR SHALL BE 2" DUCT PRESSURE CLASS.
6. COORDINATE INDUCTION UNIT PIPING/DUCT CONNECTION WITH FLOOR PLAN.
7. REBALANCE EXISTING AIR SYSTEMS PER CFM VALUES ON CONSTRUCTION PLAN.

SPECIFIC CONSTRUCTION NOTES

1. EXISTING TO REMAIN.
2. EXISTING FD TO REMAIN. PERMANENTLY CAP AND RE-BALANCE EXISTING AIR SYSTEM.
3. BALANCE VENTILATION SUPPLY INTO FCU OA INTAKE TO INDICATED FLOW RATE.
4. PROVIDE DUCT TRANSITION, FD AND ACCESS DOOR.
5. REDUCE THIS CABINET SIZE TO FIT SPACE AVAILABLE.
6. INCREASE THIS CABINET LENGTH TO ALIGN BOTH CABINET FACES.
7. AC-50 SUPPLY DUCT STATIC PRESSURE SENSOR LOCATION.
8. EXTEND LINEAR DEVICE TO ALIGN WITH ARCHITECTURAL RCP. BLANK-OFF BACKSIDE OF INACTIVE SEGMENTS.
9. PROVIDE DUCT TRANSITION TO ROUTE DUCT ABOVE EXISTING SANITARY MAIN.

BUILDING IS FULLY SPRINKLERED

Scale: 1/8"=1'-0"

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

CONSULTANTS:

ASBESTOS ABATEMENT CONSULTANT:
Egan Environmental Consulting, Inc.
14 HIGH STREET
MAHWAH, NEW JERSEY 07430
Tel: (201) 848-7790 Fax: (201) 848-7791

KEY PLAN: WEST — SOUTH — NORTH

ARCHITECT/ENGINEERS:

CANNONDESIGN
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Baltimore ■ Boston ■ Buffalo ■ Calgary ■ Chicago
Houston ■ Los Angeles ■ Mumbai ■ New York ■ Phoenix
St. Louis ■ San Francisco ■ Shanghai ■ Toronto
Vancouver ■ Victoria ■ Washington DC

Drawing Title: MECHANICAL DUCTWORK PLAN 9TH FLOOR - WEST

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date	Checked	Drawn
AUGUST 15, 2013	JB	SO

Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MH109-W

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231

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PARTITION FIRE RATING LEGEND

- 1 HOUR FIRE
- SMOKE BARRIER (1 HOUR FIRE)
- 2 HOUR FIRE BARRIER

CONSTRUCTION PLAN LEGEND

MATCH LINE — F1/1-MXXXX-X / F1/1-MXXXX-X

SPECIFIC CONSTRUCTION NOTE — ⟨1⟩

NEW FAN COIL UNIT (CONCEALED)

FCU-A — FAN COIL UNIT; UNIT DESIGNATION

NEW INDUCTION UNIT (EXPOSED)

XXX-X — RETURN GRILL; PRIMARY AIR (CFM); UNIT SIZE

*SEE 1-MH602/D5 FOR COOLING AND HEATING CAPACITY

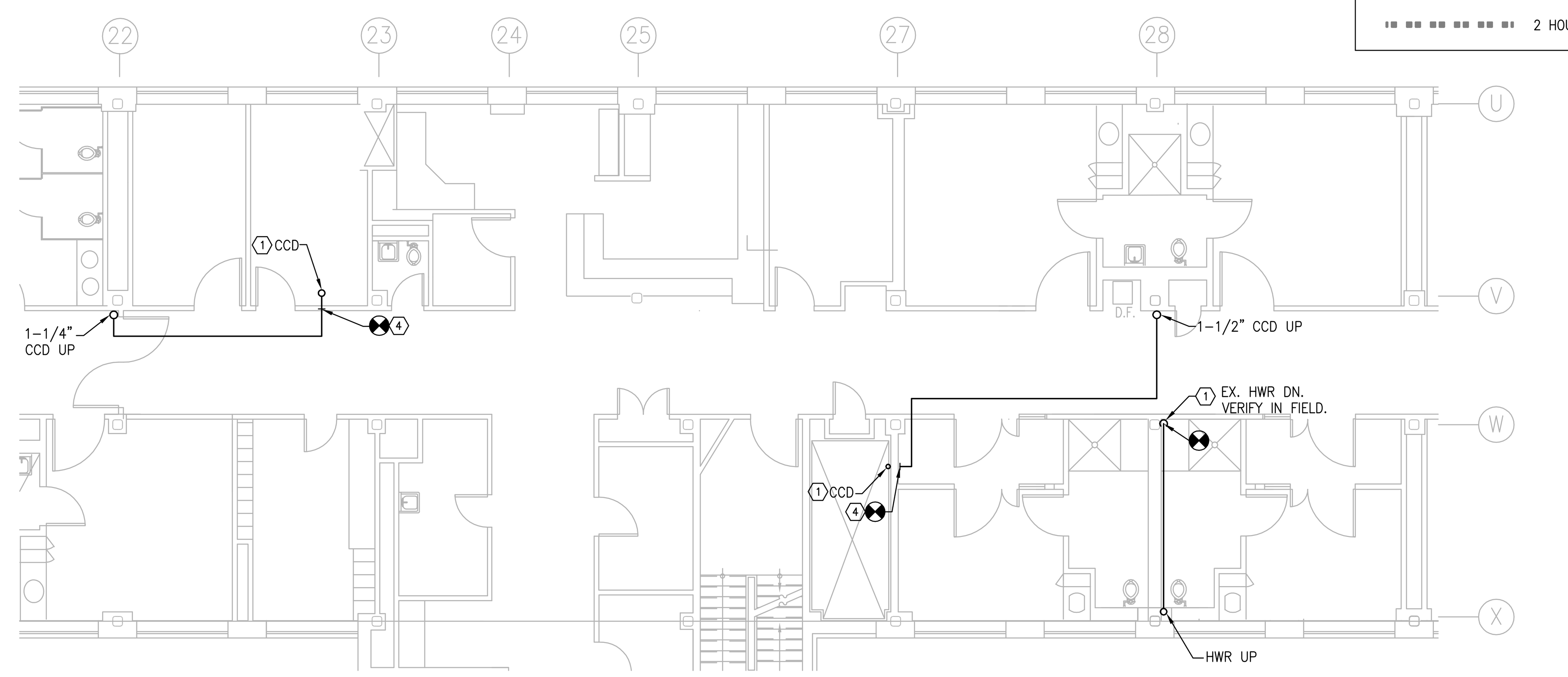
NEW CONVECTOR ELEMENT

53"L – 11.7 — LENGTH (NCHES); MBH (AT 5 PSIG INLET PRESS)

NEW FINNED RADIATOR

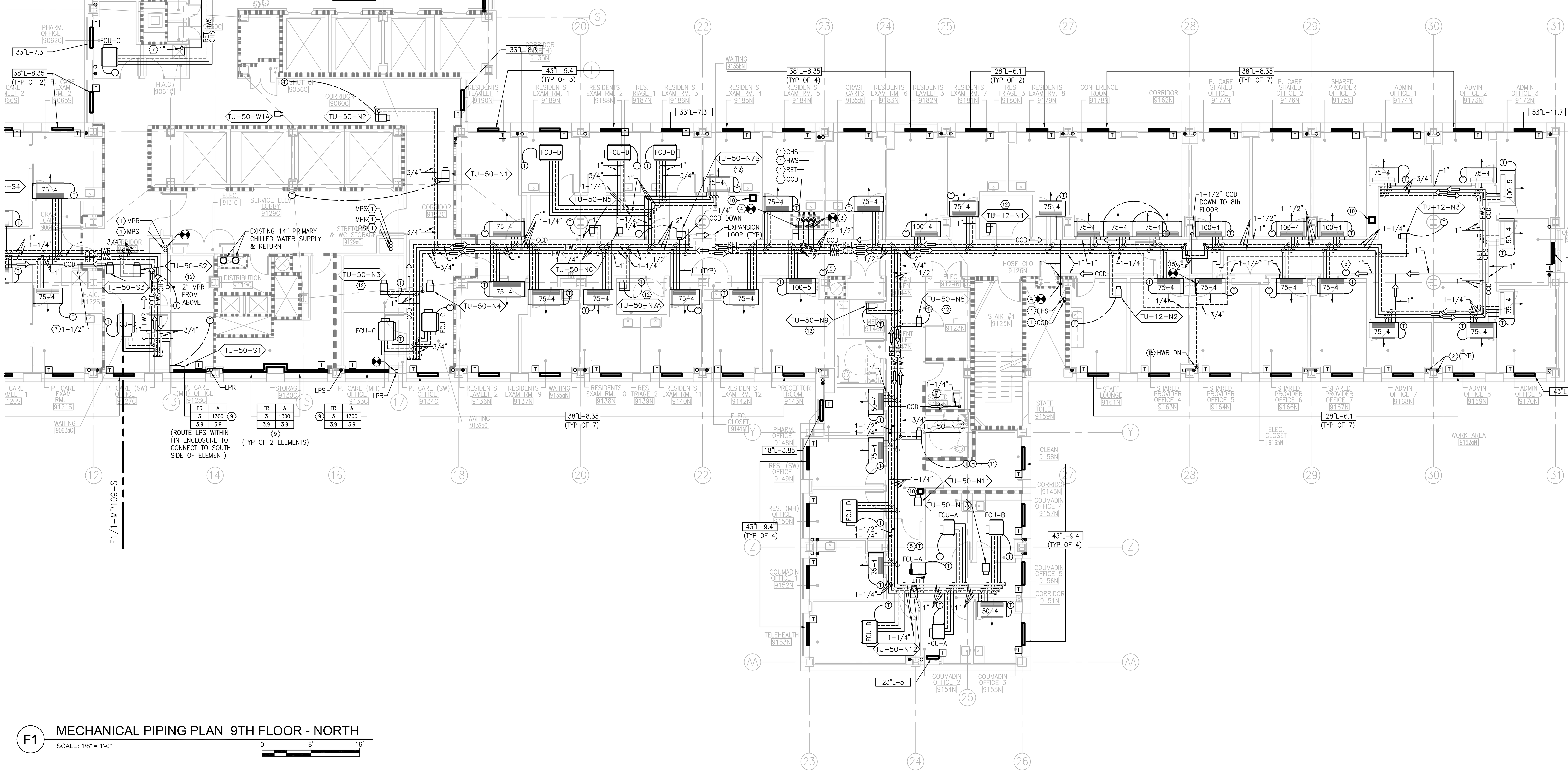
FR	A

ACTIVE LENGTH (FEET); TOTAL MBH; BTUH PER LINEAR FOOT; LBS/HR (LPS)



B5 MECHANICAL PIPING PLAN 8TH FLOOR - NORTH

SCALE: 1/8" = 1'-0"



F1 MECHANICAL PIPING PLAN 9TH FLOOR - NORTH

SCALE: 1/8" = 1'-0"

GENERAL CONSTRUCTION NOTES

1. ALL PIPING SHALL BE 3/4" UNLESS OTHERWISE NOTED.
2. EXISTING CONVERTOR ELEMENT REPLACEMENT : REPLACE WITH ELEMENTS OF THE SAME DIMENSION, FIN-SPACING AND LENGTH. PROVIDE NEW 2-WAY CONTROL VALVE AND STEAM TRAP. SEE DETAIL C5/1-MH501.
3. ALL ROOM THERMOSTATIC SENSOR LOCATIONS SHALL BE COORDINATED WITH ARCHITECTURAL ELEVATION DRAWINGS.
4. FIRE CAULK ALL DUCT AND PIPE PENETRATIONS OF CORRIDOR WALLS AND RATED WALLS. REFER TO LIFE SAFETY DOCUMENTATION FOR RATINGS.

SPECIFIC CONSTRUCTION NOTES

1. EXISTING TO REMAIN.
2. EXISTING LOW PRESSURE STEAM RISERS TO REMAIN.
3. CONNECT NEW 2-1/2" CHS, HWS AND RET FROM EXISTING PIPE MAINS. PROVIDE NEW ISOLATION VALVES.
4. CONNECT NEW 2" CCD TO EXISTING PIPE RISER. PROVIDE NEW TRASNITION.
5. CONNECT ROOM TEMPERATURE SENSOR TO CENTRAL BAS FOR MONITORING PURPOSES ONLY.
6. ROUTE CCD DOWN TO 8TH FLOOR JANITOR'S SINK. TERMINATE PIPE 2 INCHES ABOVE SINK RIM.
7. TERMINATE CCD PIPE 2" ABOVE SINK RIM.
8. REPLACE EXISTING RADIATOR ELEMENT AND CONTROL VALVE AND TRAP. COORDINATE WITH NEW ARCHITECTURAL ENCLOSURE.
9. PROVIDE FIN ENCLOSURE WALL-TO-WALL WITH ACCESS DOOR TO VALVE AND TRAP ASSEMBLIES. SEE DETAIL ON 1-MH501. CONNECT TO EXISTING LPS AND LPR RISERS ABOVE 9TH FLOOR SLAB. PROVIDE THERMO-MECHANICAL CONTROL VALVE AND TRAP.
10. INDUCTION UNIT CONTROLS TRANSFORMER BANK (5 TRANSFORMERS). LOCATE IN ACCESSIBLE AREA ABOVE THE CEILING ASSEMBLY.
11. PROVIDE ROOM HUMIDITY SENSOR. TIE INTO BAS.
12. BALANCE REHEAT COIL TO MINIMUM OF 0.5 GPM.
13. CONNECT TO EXISTING CHS/RET PIPING TO ABOVE.
14. PROVIDE DRAIN PAN BELOW EXISTING PIPE IN IT ROOM.
15. NEW HWR OFFSET PIPING, SIZE TO MATCH EXISTING. EXISTING SIZE TO BE VERIFIED IN FIELD.
16. LOCATE TEMPERATURE CONTROL WITHIN CONVECTOR ENCLOSURE.
17. NEW CCD OFFSET PIPING, SIZE TO MATCH EXISTING. EXISTING SIZE TO BE VERIFIED IN FIELD.

BUILDING IS FULLY SPRINKLERED — Scale: 1/8"=1'-0"

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

CONSULTANTS:

ASBESTOS ABATEMENT CONSULTANT:

Egan Environmental Consulting, Inc.

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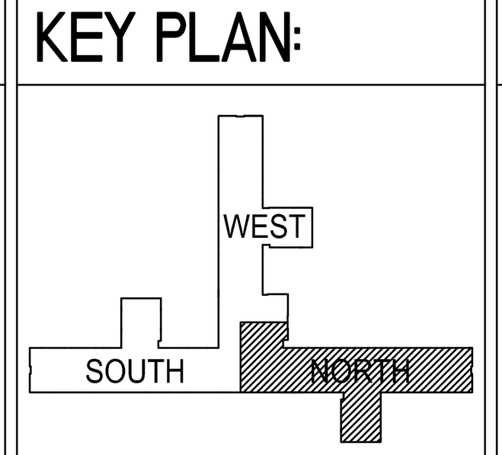
Tel: (201) 848-7790 Fax: (201) 848-7791

KEY PLAN:



ARCHITECT/ENGINEERS:

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Drawing Title: MECHANICAL PIPING PLAN 9TH FLOOR - NORTH

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date: AUGUST 15, 2013 | Checked: JB | Drawn: SO

Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MP109-N

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231

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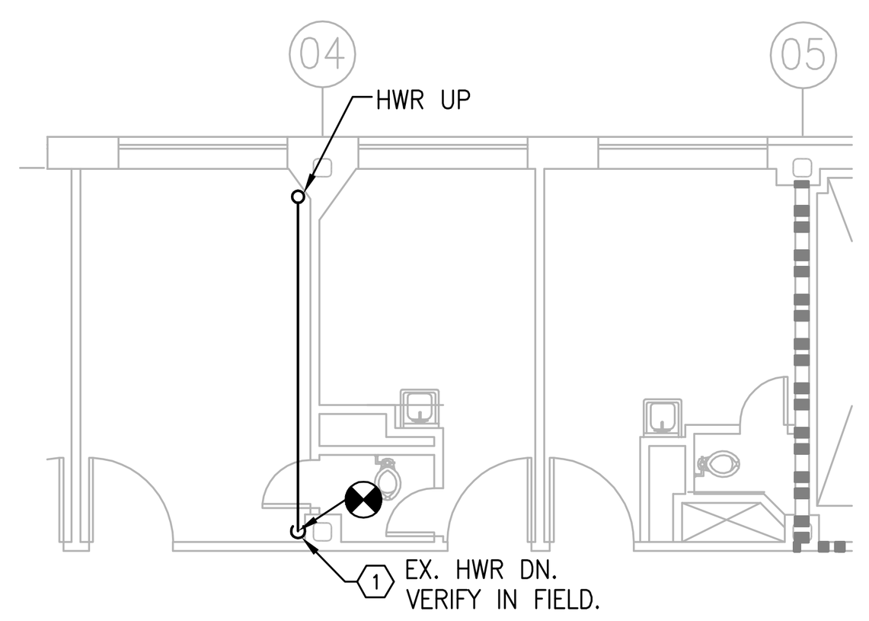
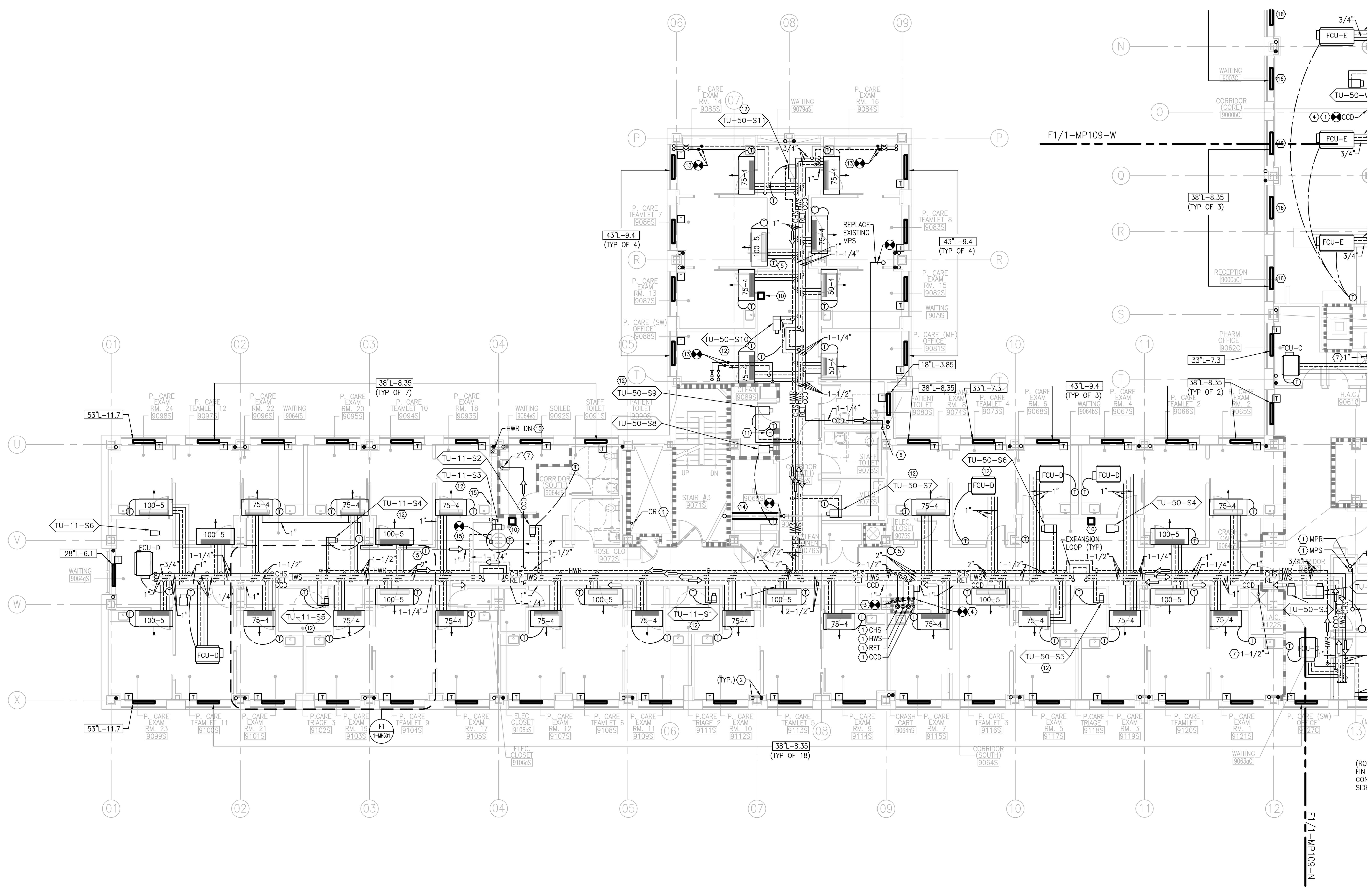


A2 MECHANICAL PIPING PLAN 8TH FLOOR - SOUTH

SCALE: 1/8" = 1'-0"



F1 MECHANICAL PIPING PLAN 9TH FLOOR - SOUTH

SCALE: 1/8" = 1'-0"

PARTITION FIRE RATING LEGEND

- 1 HOUR FIRE
- SMOKE BARRIER (1 HOUR FIRE)
- 2 HOUR FIRE BARRIER

CONSTRUCTION PLAN LEGEND

MATCH LINE — F1/1-MXXXX-X / F1/1-MXXXX-X

SPECIFIC CONSTRUCTION NOTE — (1)

NEW FAN COIL UNIT (CONCEALED)

FCU-A — FAN COIL UNIT; UNIT DESIGNATION

NEW INDUCTION UNIT (EXPOSED)

XXX-X — RETURN GRILL; PRIMARY AIR (CFM); UNIT SIZE

*SEE 1-MH602/D5 FOR COOLING AND HEATING CAPACITY

NEW CONVECTOR ELEMENT

53"L - 11.7 — LENGTH (NCHES); MBH (AT 5 PSIG INLET PRESS)

NEW FINNED RADIATOR

FR	A

ACTIVE LENGTH (FEET); TOTAL MBH; BTUH PER LINEAR FOOT; LBS/HR (LPS)

GENERAL CONSTRUCTION NOTES

1. ALL PIPING SHALL BE 3/4" UNLESS OTHERWISE NOTED.
2. EXISTING CONVERTOR ELEMENT REPLACEMENT : REPLACE WITH ELEMENTS OF THE SAME DIMENSION, FIN-SPACING AND LENGTH. PROVIDE NEW 2-WAY CONTROL VALVE AND STEAM TRAP. SEE DETAIL C5/1-MH501.
3. ALL ROOM THERMOSTATIC SENSOR LOCATIONS SHALL BE COORDINATED WITH ARCHITECTURAL ELEVATION DRAWINGS.
4. FIRE CAULK ALL DUCT AND PIPE PENETRATIONS OF CORRIDOR WALLS AND RATED WALLS. REFER TO LIFE SAFETY DOCUMENTATION FOR RATINGS.

SPECIFIC CONSTRUCTION NOTES

1. EXISTING TO REMAIN.
2. EXISTING LOW PRESSURE STEAM RISERS TO REMAIN.
3. CONNECT NEW 2-1/2" CHS, HWS AND RET FROM EXISTING PIPE MAINS. PROVIDE NEW ISOLATION VALVES.
4. CONNECT NEW 2" CCD TO EXISTING PIPE RISER. PROVIDE NEW TRASNITION.
5. CONNECT ROOM TEMPERATURE SENSOR TO CENTRAL BAS FOR MONITORING PURPOSES ONLY.
6. ROUTE CCD DOWN TO 8TH FLOOR JANITOR'S SINK. TERMINATE PIPE 2 INCHES ABOVE SINK RIM.
7. TERMINATE CCD PIPE 2" ABOVE SINK RIM.
8. REPLACE EXISTING RADIATOR ELEMENT AND CONTROL VALVE AND TRAP. COORDINATE WITH NEW ARCHITECTURAL ENCLOSURE.
9. PROVIDE FIN ENCLOSURE WALL-TO-WALL WITH ACCESS DOOR TO VALVE AND TRAP ASSEMBLIES. SEE DETAIL ON 1-MH501. CONNECT TO EXISTING LPS AND LPR RISERS ABOVE 9TH FLOOR SLAB. PROVIDE THERMO-MECHANICAL CONTROL VALVE AND TRAP.
10. INDUCTION UNIT CONTROLS TRANSFORMER BANK (5 TRANSFORMERS). LOCATE IN ACCESSIBLE AREA ABOVE THE CEILING ASSEMBLY.
11. PROVIDE ROOM HUMIDITY SENSOR. TIE INTO BAS.
12. BALANCE REHEAT COIL TO MINIMUM OF 0.5 GPM.
13. CONNECT TO EXISTING CHS/RET PIPING TO ABOVE.
14. PROVIDE DRAIN PAN BELOW EXISTING PIPE IN IT ROOM.
15. NEW HWR OFFSET PIPING, SIZE TO MATCH EXISTING. EXISTING SIZE TO BE VERIFIED IN FIELD.
16. LOCATE TEMPERATURE CONTROL WITHIN CONVECTOR ENCLOSURE.
17. NEW CCD OFFSET PIPING, SIZE TO MATCH EXISTING. EXISTING SIZE TO BE VERIFIED IN FIELD.

BUILDING IS FULLY SPRINKLERED

Scale: 1/8"=1'-0"

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

CONSULTANTS:

ASBESTOS ABATEMENT CONSULTANT:
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Tel: (201) 848-7790 Fax: (201) 848-7791

KEY PLAN: WEST / SOUTH / NORTH

ARCHITECT/ENGINEERS:

CANNONDESIGN
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Baltimore ■ Boston ■ Buffalo ■ Calgary ■ Chicago
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Drawing Title: MECHANICAL PIPING PLAN 9TH FLOOR - SOUTH

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date: AUGUST 15, 2013 | Checked: JB | Drawn: SO

Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MP109-S

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231

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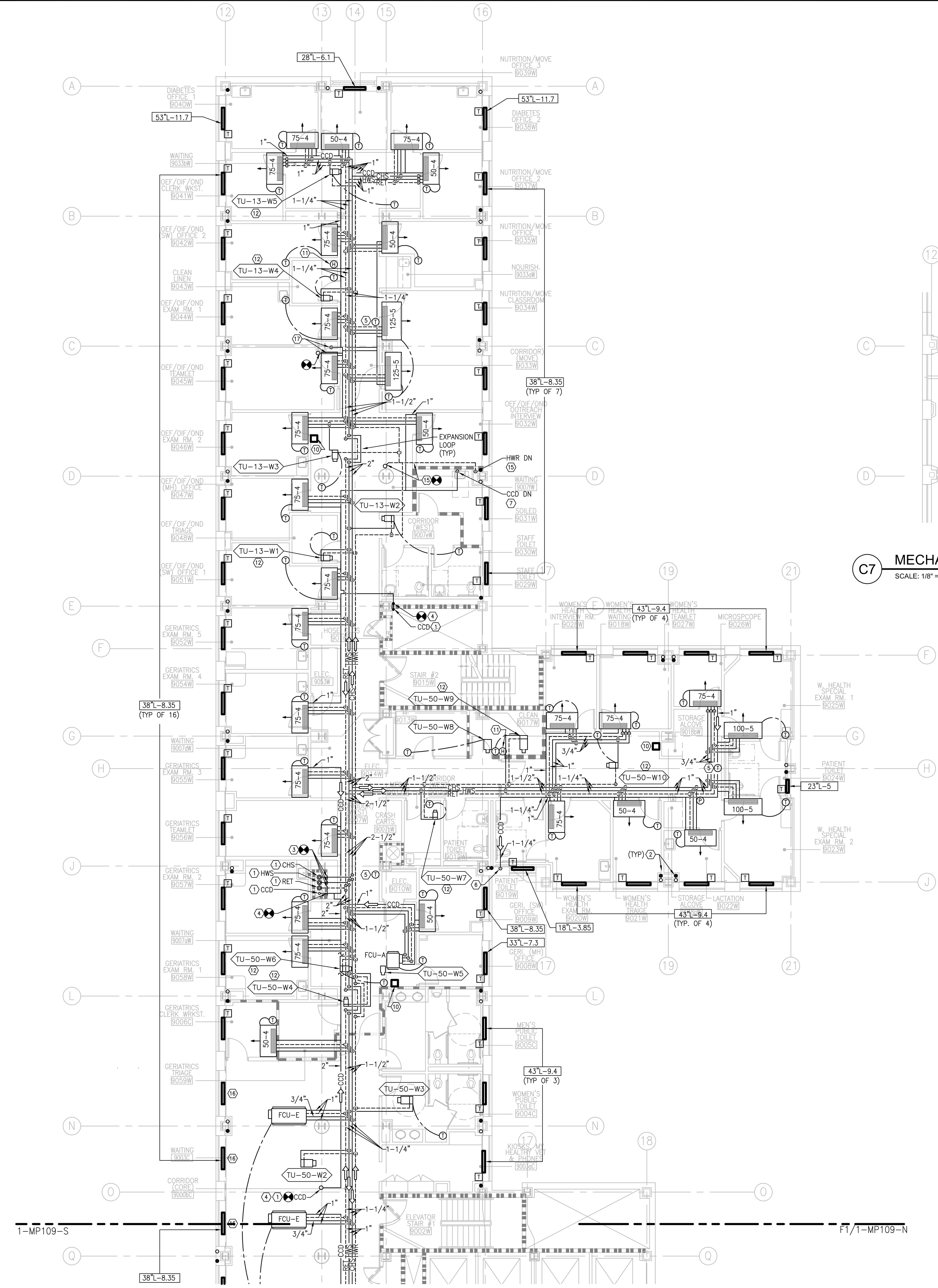
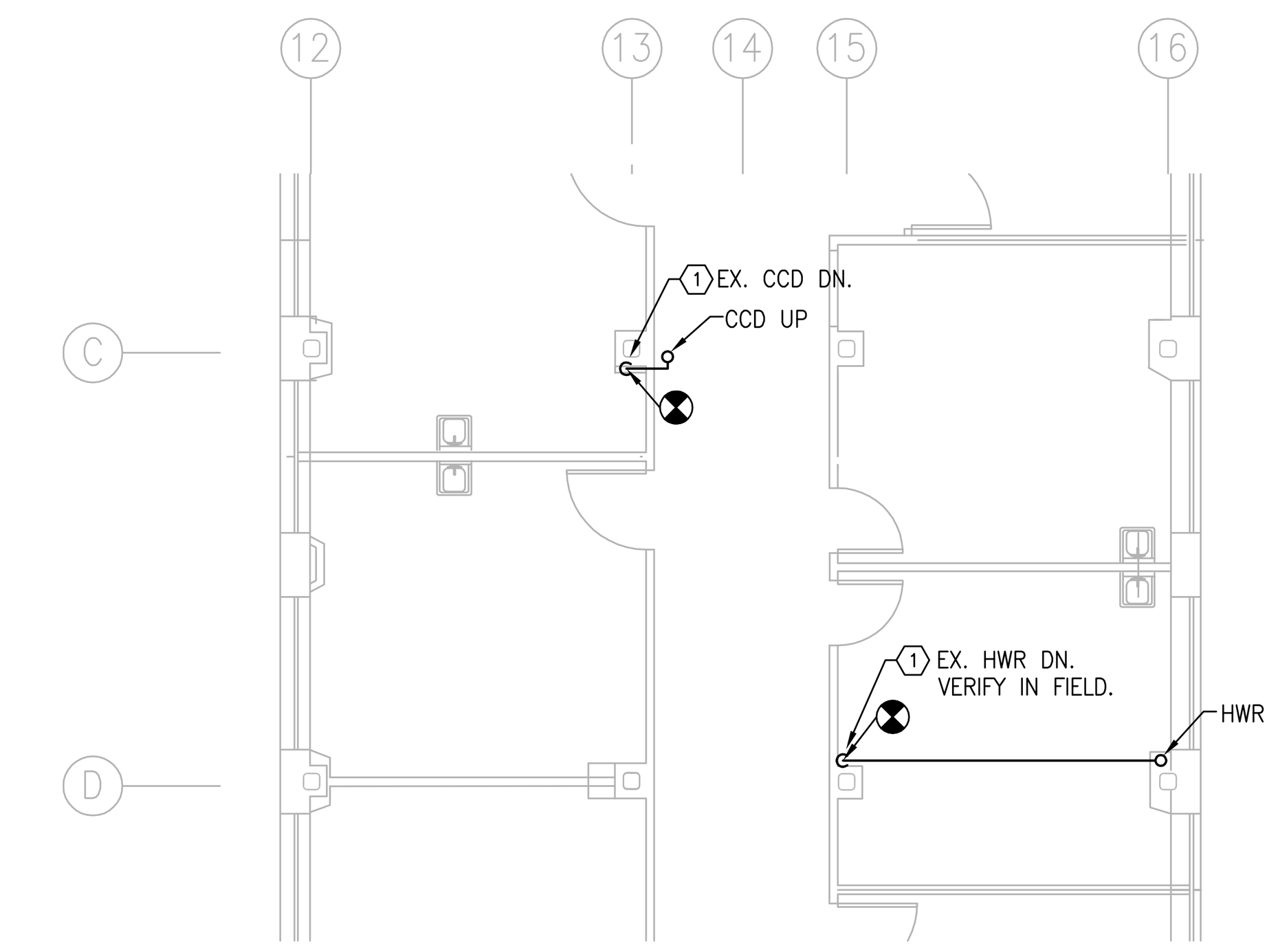


F1 MECHANICAL PIPING PLAN 9TH FLOOR - WEST

SCALE: 1/8" = 1'-0"



C7 MECHANICAL PIPING PLAN 8TH FLOOR - WEST

SCALE: 1/8" = 1'-0"

PARTITION FIRE RATING LEGEND

- 1 HOUR FIRE
- SMOKE BARRIER (1 HOUR FIRE)
- 2 HOUR FIRE BARRIER

CONSTRUCTION PLAN LEGEND

MATCH LINE F1/1-MXXXX-X / F1/1-MXXXX-X

SPECIFIC CONSTRUCTION NOTE (1)

NEW FAN COIL UNIT (CONCEALED)

FCU-A — FAN COIL UNIT; UNIT DESIGNATION

NEW INDUCTION UNIT (EXPOSED)

XXX-X — RETURN GRILL; PRIMARY AIR (CFM); UNIT SIZE

*SEE 1-MH602/D5 FOR COOLING AND HEATING CAPACITY

NEW CONVECTOR ELEMENT

53"L - 11.7 — LENGTH (NCHES); MBH (AT 5 PSIG INLET PRESS)

NEW FINNED RADIATOR

FR | A — ACTIVE LENGTH (FEET); TOTAL MBH; BTUH PER LINEAR FOOT; LBS/HR (LPS)

GENERAL CONSTRUCTION NOTES

1. ALL PIPING SHALL BE 3/4" UNLESS OTHERWISE NOTED.
2. EXISTING CONVERTOR ELEMENT REPLACEMENT : REPLACE WITH ELEMENTS OF THE SAME DIMENSION, FIN-SPACING AND LENGTH. PROVIDE NEW 2-WAY CONTROL VALVE AND STEAM TRAP. SEE DETAIL C5/1-MH501.
3. ALL ROOM THERMOSTATIC SENSOR LOCATIONS SHALL BE COORDINATED WITH ARCHITECTURAL ELEVATION DRAWINGS.
4. FIRE CAULK ALL DUCT AND PIPE PENETRATIONS OF CORRIDOR WALLS AND RATED WALLS. REFER TO LIFE SAFETY DOCUMENTATION FOR RATINGS.

SPECIFIC CONSTRUCTION NOTES

1. EXISTING TO REMAIN.
2. EXISTING LOW PRESSURE STEAM RISERS TO REMAIN.
3. CONNECT NEW 2-1/2" CHS, HWS AND RET FROM EXISTING PIPE MAINS. PROVIDE NEW ISOLATION VALVES.
4. CONNECT NEW 2" CCD TO EXISTING PIPE RISER. PROVIDE NEW TRASNITION.
5. CONNECT ROOM TEMPERATURE SENSOR TO CENTRAL BAS FOR MONITORING PURPOSES ONLY.
6. ROUTE CCD DOWN TO 8TH FLOOR JANITOR'S SINK. TERMINATE PIPE 2 INCHES ABOVE SINK RIM.
7. TERMINATE CCD PIPE 2" ABOVE SINK RIM.
8. REPLACE EXISTING RADIATOR ELEMENT AND CONTROL VALVE AND TRAP. COORDINATE WITH NEW ARCHITECTURAL ENCLOSURE.
9. PROVIDE FIN ENCLOSURE WALL-TO-WALL WITH ACCESS DOOR TO VALVE AND TRAP ASSEMBLIES. SEE DETAIL ON 1-MH501. CONNECT TO EXISTING LPS AND LPR RISERS ABOVE 9TH FLOOR SLAB. PROVIDE THERMO-MECHANICAL CONTROL VALVE AND TRAP.
10. INDUCTION UNIT CONTROLS TRANSFORMER BANK (5 TRANSFORMERS). LOCATE IN ACCESSIBLE AREA ABOVE THE CEILING ASSEMBLY.
11. PROVIDE ROOM HUMIDITY SENSOR. TIE INTO BAS.
12. BALANCE REHEAT COIL TO MINIMUM OF 0.5 GPM.
13. CONNECT TO EXISTING CHS/RET PIPING TO ABOVE.
14. PROVIDE DRAIN PAN BELOW EXISTING PIPE IN IT ROOM.
15. NEW HWR OFFSET PIPING, SIZE TO MATCH EXISTING. EXISTING SIZE TO BE VERIFIED IN FIELD.
16. LOCATE TEMPERATURE CONTROL WITHIN CONVECTOR ENCLOSURE.
17. NEW CCD OFFSET PIPING, SIZE TO MATCH EXISTING. EXISTING SIZE TO BE VERIFIED IN FIELD.

BUILDING IS FULLY SPRINKLERED

Scale: 1/8"=1'-0"

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

CONSULTANTS:

ASBESTOS ABATEMENT CONSULTANT:
Egan Environmental Consulting, Inc.
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Tel: (201) 848-7790 Fax: (201) 848-7791

KEY PLAN: WEST / SOUTH / NORTH

ARCHITECT/ENGINEERS:

CANNONDESIGN
360 Madison Avenue, New York, New York 10017 212.972.9800
Baltimore ■ Boston ■ Buffalo ■ Calgary ■ Chicago
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Drawing Title: MECHANICAL PIPING PLAN 9TH FLOOR - WEST

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date: AUGUST 15, 2013 | Checked: JB | Drawn: SO

Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MP109-W

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231
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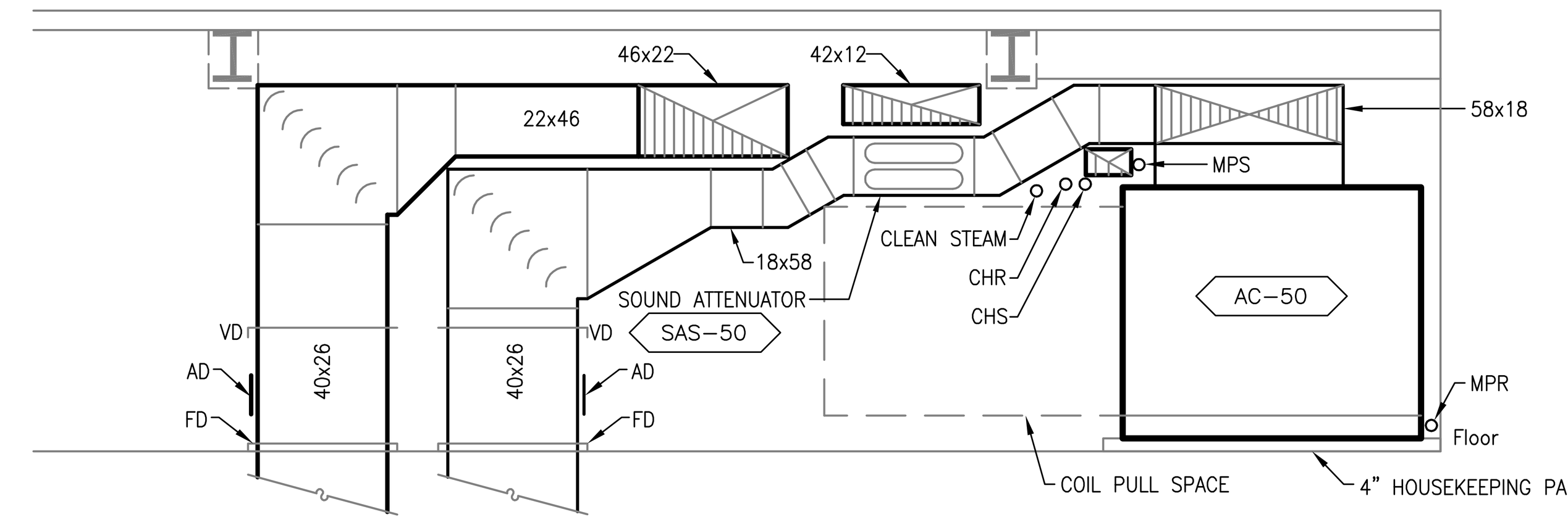
1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

PARTITION FIRE RATING LEGEND

- 1 HOUR FIRE
- SMOKE BARRIER (1 HOUR FIRE)
- 2 HOUR FIRE BARRIER

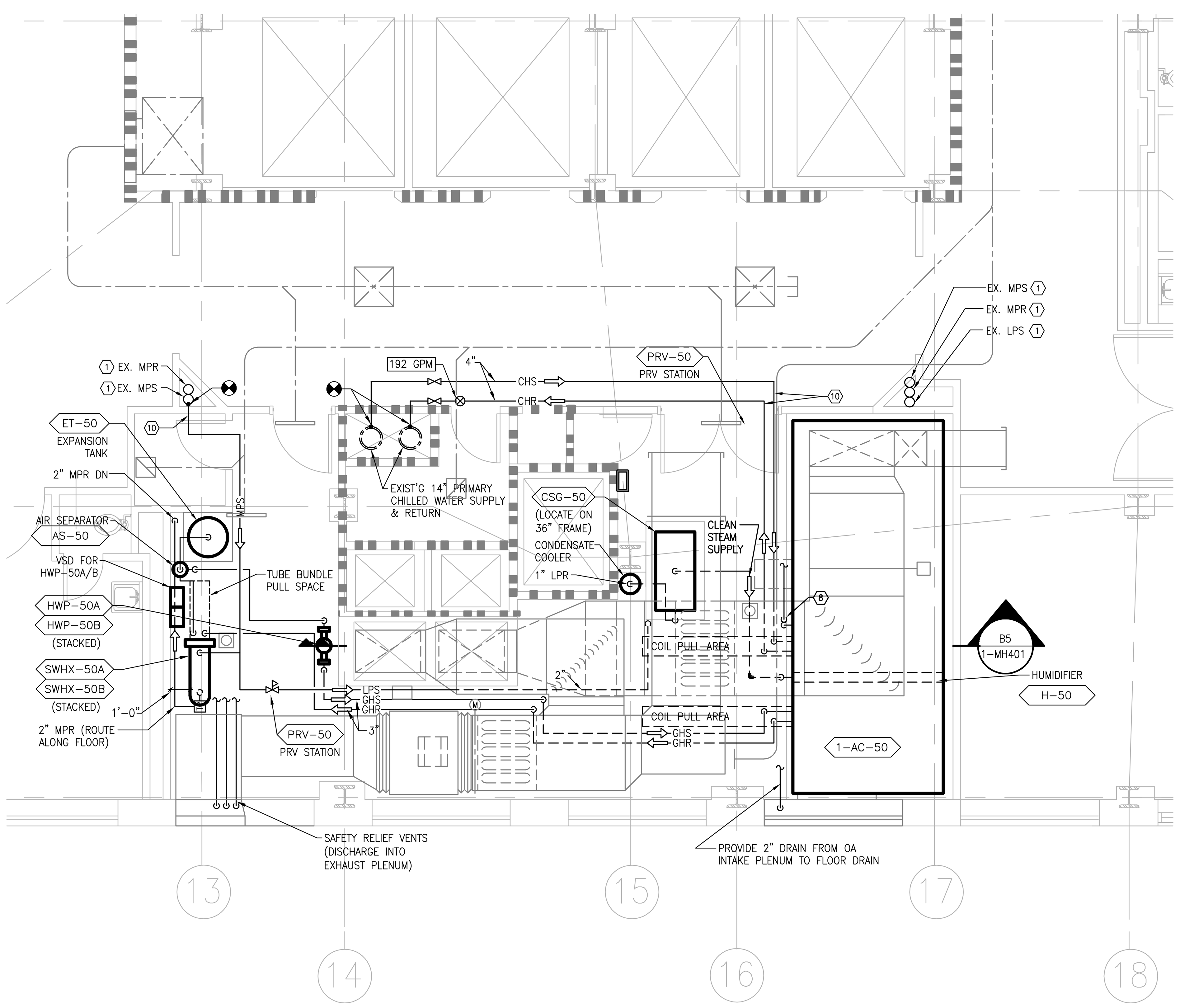
CONSTRUCTION PLAN LEGEND

- MATCH LINE — F1/1-MXXXX-X / F1/1-MXXXX-X
- SPECIFIC CONSTRUCTION NOTE — (1)
- NEW WALL REGISTER



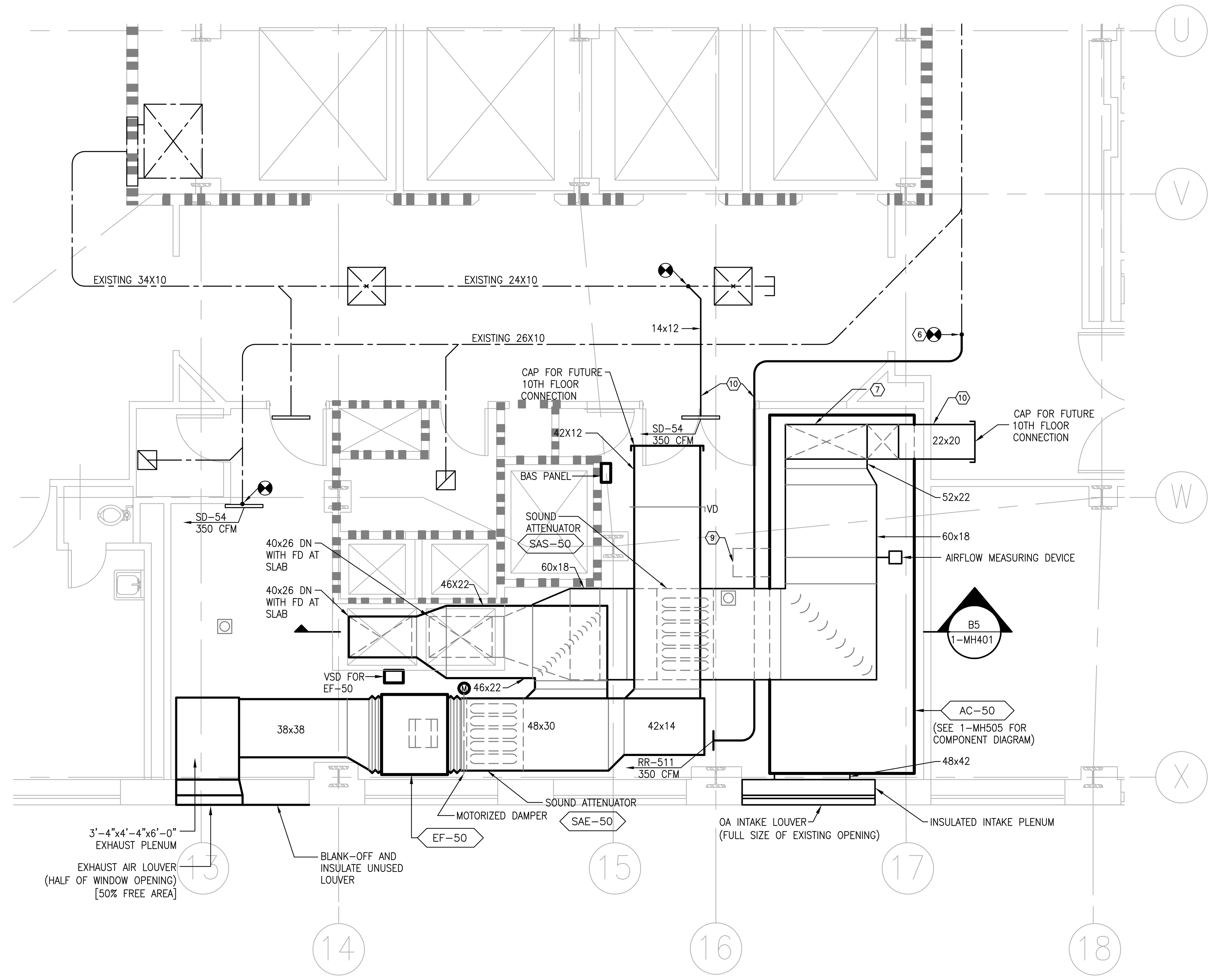
B5 MECHANICAL SECTION - PARTIAL 10TH FLOOR MER PLAN

SCALE: 1/4" = 1'-0"



F1 ENLARGED MECHANICAL PLAN - PARTIAL 10TH FLOOR MER PIPING PLAN

SCALE: 1/4" = 1'-0"



F5 ENLARGED MECHANICAL PLAN - PARTIAL 10TH FLOOR MER DUCTWORK PLAN

SCALE: 1/4" = 1'-0"

GENERAL CONSTRUCTION NOTES

1. ALL PRIMARY AIR DUCT CONNECTION TO INDUCTION UNIT SHALL BE 4"ø UNLESS NOTED OTHERWISE.
2. ALL SUPPLY DIFFUSER AIR FLOW PATTERNS ARE 4-WAY UNLESS NOTED OTHERWISE.
3. FIRE CAULK ALL DUCT AND PIPE PENETRATIONS OF CORRIDOR WALLS AND RATED WALLS.
4. ALL ROOM THERMOSTATIC SENSOR LOCATIONS SHALL BE COORDINATED WITH ARCHITECTURAL DRAWINGS.
5. ALL HYDRONIC PIPING TO INDUCTION UNIT AND TERMINAL UNITS SHALL BE 3/4" UNLESS NOTED OTHERWISE.
6. LOCATE ALL THERMOMETERS AND GAUGES TO FACILITATE READING FROM STANDING POSITION.
7. ALL SUPPLY DUCTWORK ASSOCIATED WITH AC-50 ON THIS DRAWING INCLUDING RISERS DOWN TO 8TH FLOOR SHALL BE 6" DUCT PRESSURE CLASS.
8. ALL EXHAUST DUCTWORK ASSOCIATED WITH EF-50 ON THIS DRAWING INCLUDING THE RISER DOWN TO 8TH FLOOR SHALL BE 3" DUCT PRESSURE CLASS.

SPECIFIC CONSTRUCTION NOTES

1. EXISTING TO REMAIN.
2. EXISTING FD TO REMAIN. PERMANENTLY CAP AND RE-BALANCE EXISTING AIR SYSTEM.
3. BALANCE VENTILATION SUPPLY INTO FCU OA INTAKE TO INDICATED FLOW RATE.
4. PROVIDE DUCT TRANSITION AND ACCESS DOOR TO EXISTING FD.
5. EXISTING LOW PRESSURE STEAM RISERS TO REMAIN.
6. EXTEND EXISTING DUCTWORK INTO MECHANICAL EQUIPMENT ROOM.
7. PROVIDE SMOKE DAMPER AT FULL SIZE OF AHU DISCHARGE.
8. PROVIDE 1" CCD TRAP ROUTE TO FLOOR DRAIN.
9. AC-50 POWER PANEL WITH TWO REDUNDANT VSD'S.
10. FIRE STOP ALL DUCT AND PIPE PENETRATIONS.

BUILDING IS FULLY SPRINKLERED

Scale: 1/4"=1'-0"

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

CONSULTANTS:

ASBESTOS ABATEMENT CONSULTANT:
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Tel: (201) 848-7790 Fax: (201) 848-7791

KEY PLAN:

WEST
SOUTH NORTH

ARCHITECT/ENGINEERS:

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Drawing Title: ENLARGED MECHANICAL PLANS - PARTIAL 10TH FL MER PLAN

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date	Checked	Drawn
AUGUST 15, 2013	JB	SO

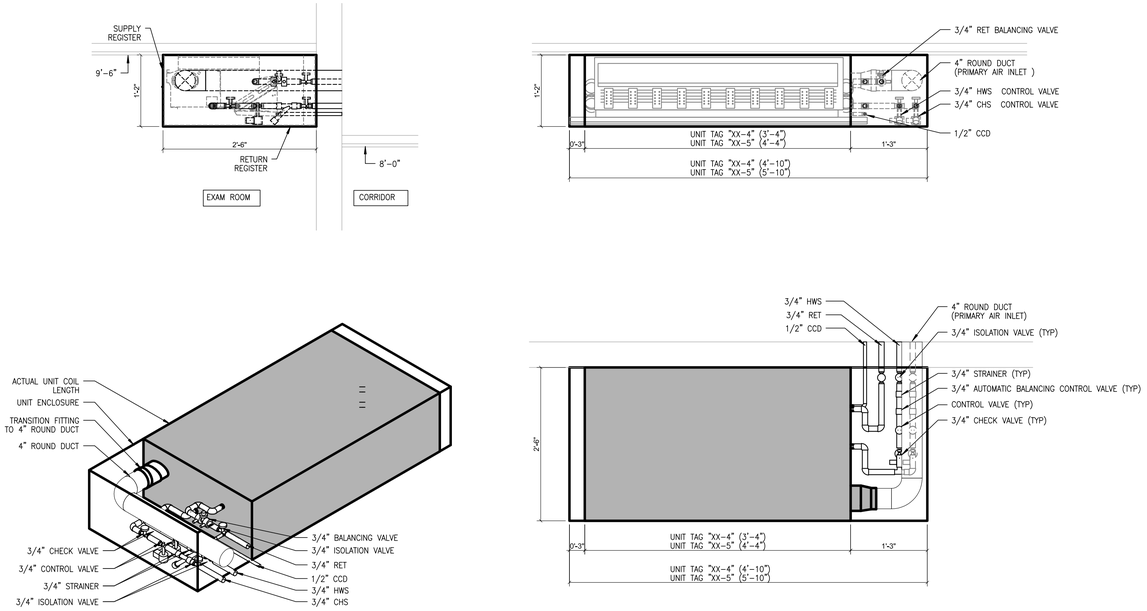
Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MH401

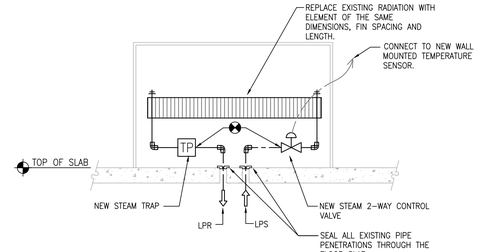
Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs



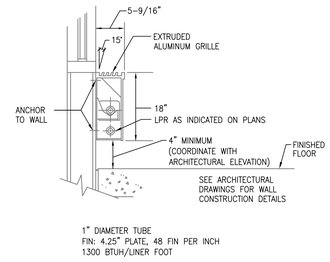
C1 INDUCTION UNIT CONNECTION DETAIL

SCALE: 1"=1'-0"

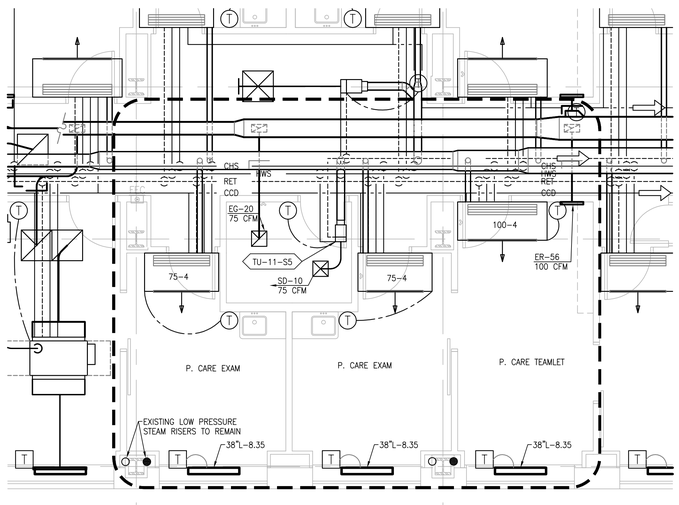


C5 CONVECTOR REPLACEMENT PIPING DETAIL

SCALE : NTS



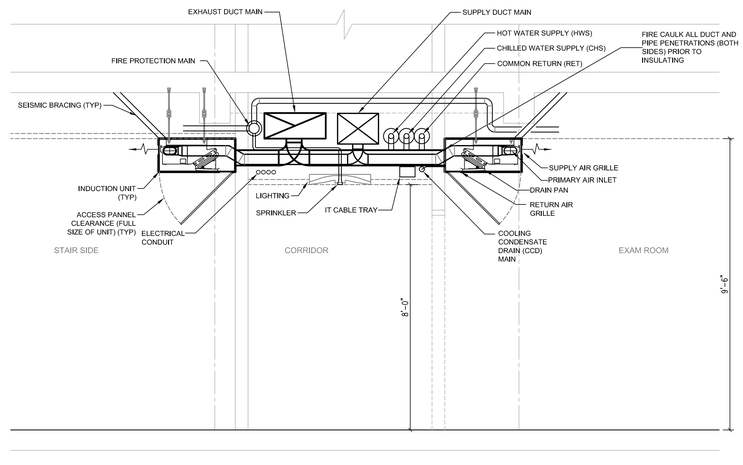
C8 FINNED TUBE RADIATION - TYPE A MOUNTING DETAIL



F1 ENLARGED MECHANICAL PLAN - TYPICAL EXAM ROOM & TEAMLET PLAN

SCALE: 1/4"=1'-0"

0 4' 8'



F5 LEVEL 9 ABOVE CEILING COORDINATION DIAGRAM

SCALE: 1/2" = 1'-0"

0 2' 4'

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

CONSULTANTS:

ASBESTOS ABATEMENT CONSULTANT:
Egan Environmental Consulting, Inc.
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MAHWAH, NEW JERSEY 07430
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KEY PLAN:

ARCHITECT/ENGINEERS:

CANNONDESIGN
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Baltimore ■ Boston ■ Buffalo ■ Calgary ■ Chicago
Houston ■ Los Angeles ■ Mumbai ■ New York ■ Phoenix
St. Louis ■ San Francisco ■ Shanghai ■ Toronto
Vancouver ■ Victoria ■ Washington DC

Drawing Title: MECHANICAL DETAILS 1

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM
MANHATTAN VAMC - BUILDING 1
9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET
NEW YORK, NY 10010

Date: AUGUST 15, 2013 | Checked: JB | Drawn: JRC

Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MH501

BUILDING IS FULLY SPRINKLERED

Scale: AS NOTED

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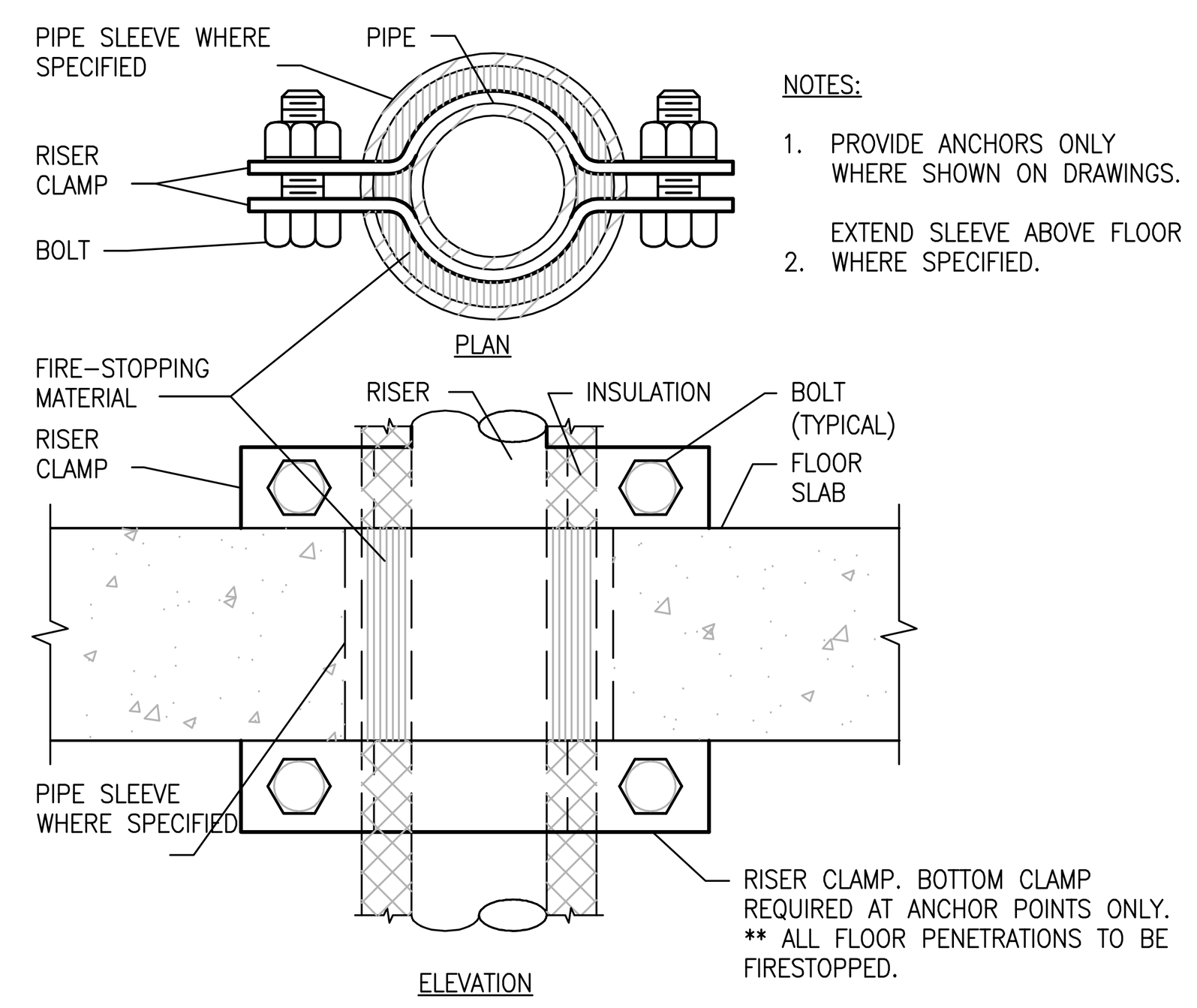
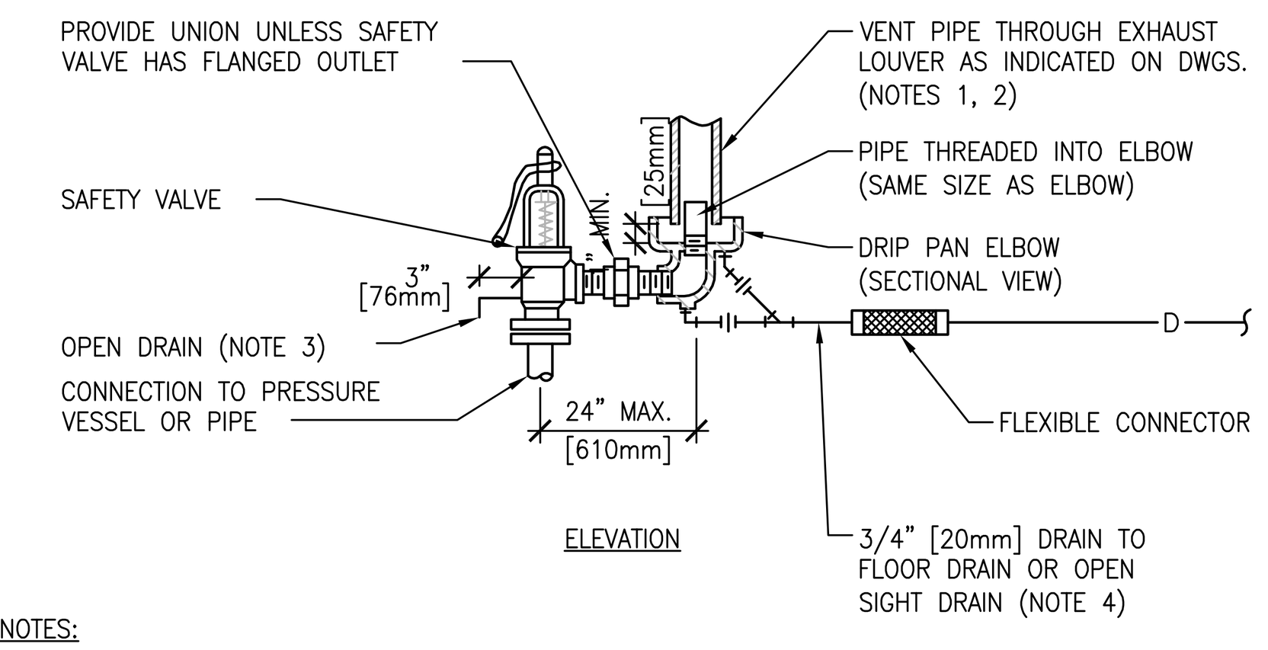
VA FORM 08-6231



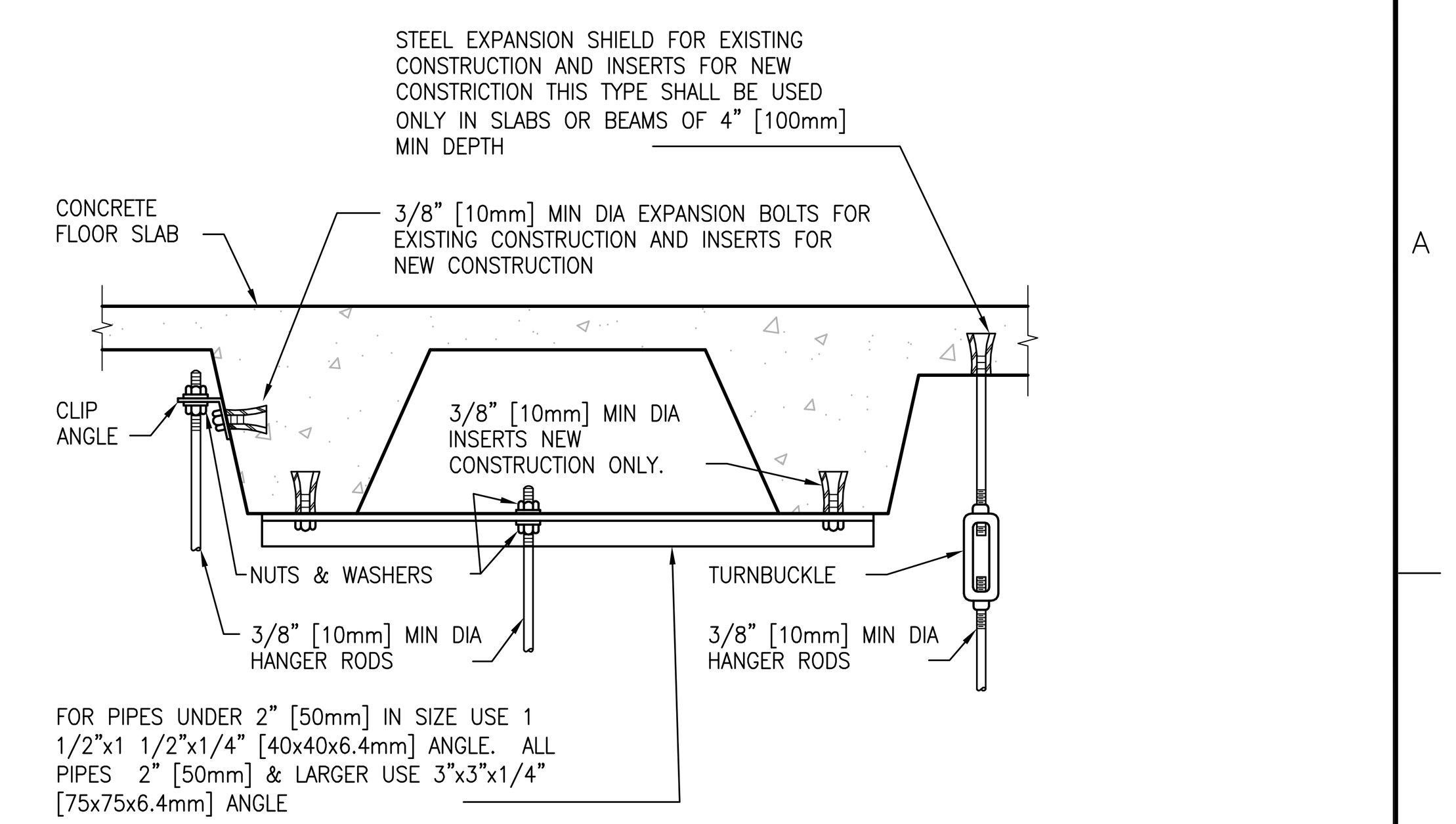
NOTES:
1. PROVIDE ANCHORS ONLY WHERE SHOWN ON DRAWINGS.
2. EXTEND SLEEVE ABOVE FLOOR WHERE SPECIFIED.

B3 SUPPORT/ANCHOR FOR PIPE RISERS
SCALE: NTS

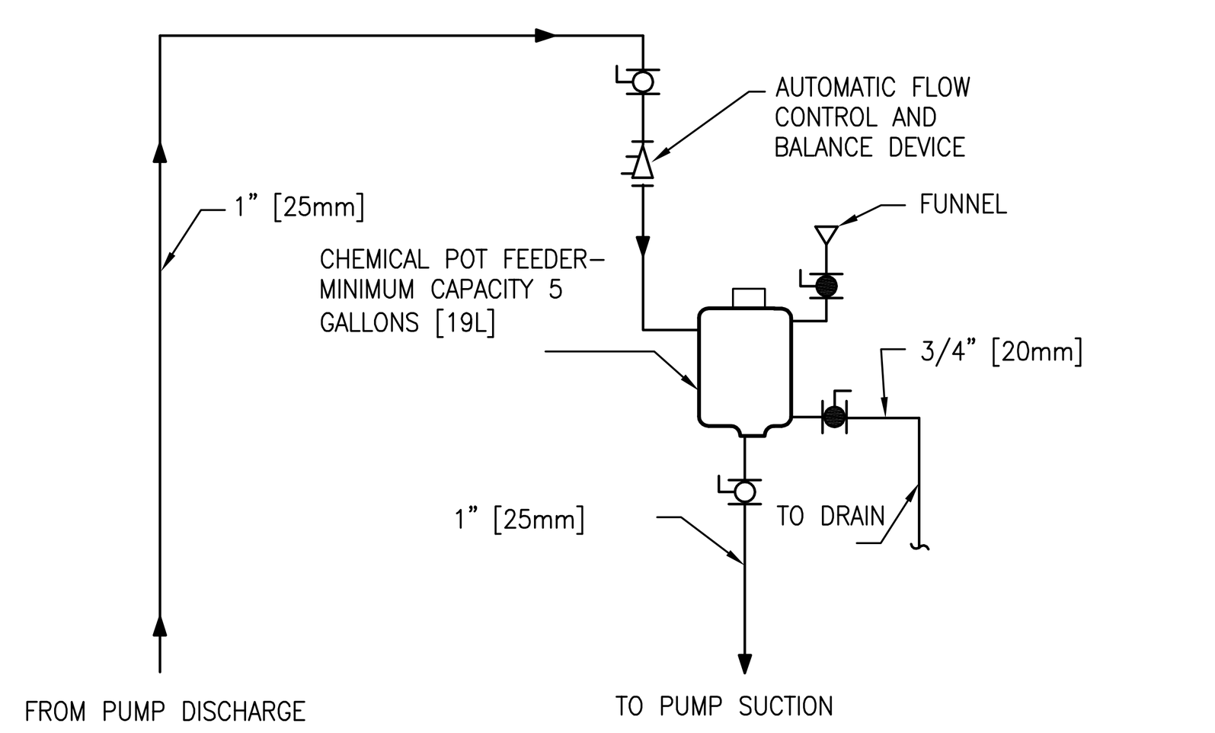


NOTES:
1. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, SIZE THE VENT PIPE SO THAT STEAM IS NOT BLOWN OUT AT THE VENT PIPE ENTRANCE. UTILIZE THE CALCULATION METHOD CONTAINED IN ANSI B31.1. POWER PIPING CODE, APPENDIX II.
2. VENT PIPE SHALL TERMINATE WITHIN EXHAUST PLENUM.
3. DISCHARGE OF DRAIN MUST BE DIRECTED AWAY FROM PLATFORMS OR OTHER AREAS WHICH PERSONNEL MAY OCCUPY.
4. DO NOT CONNECT ANY OTHER DRAIN TO THE DRIP PAN ELBOW DRAIN PIPE.

B5 STEAM SAFETY VALVE
SCALE: NTS

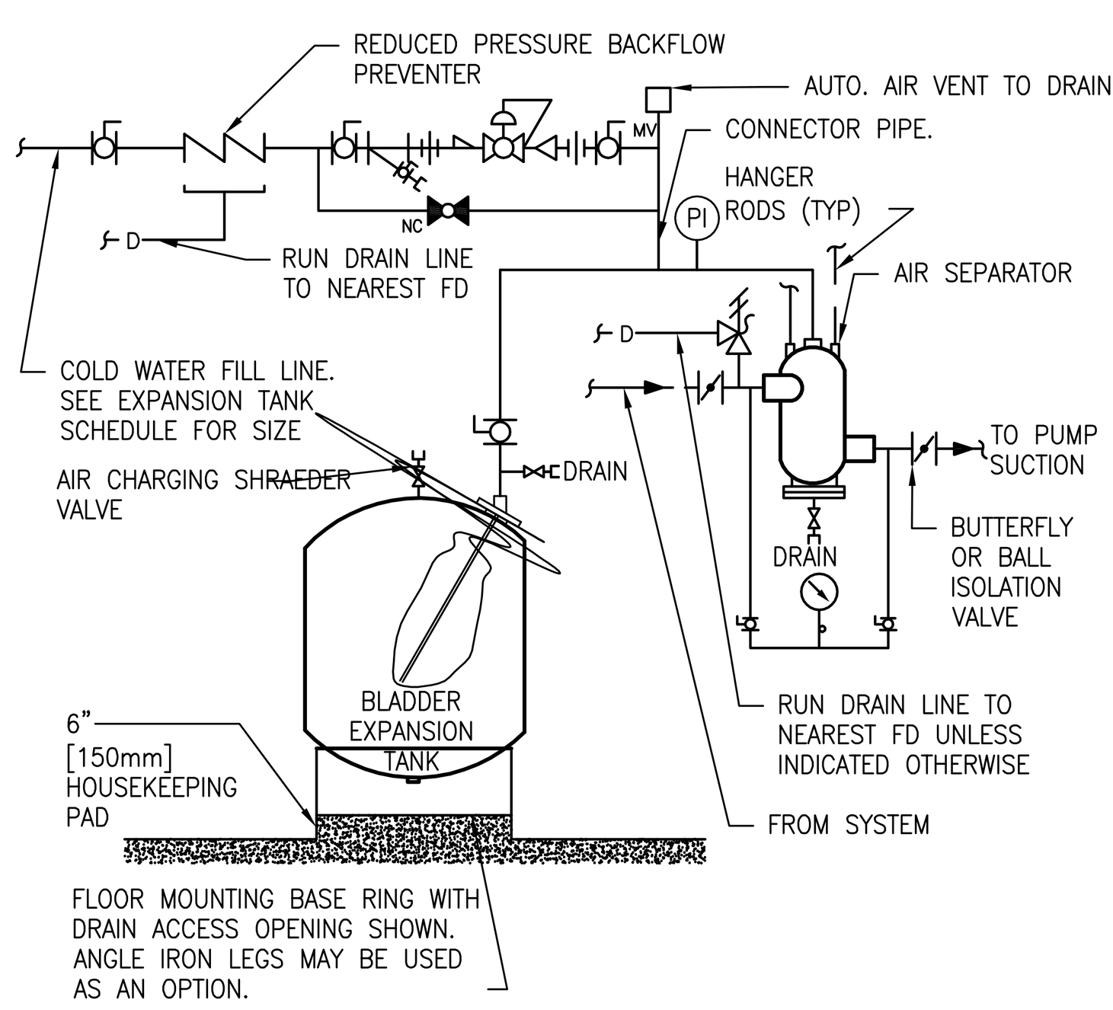


B8 SECURING HANGER RODS IN CONCRETE
SCALE: NTS



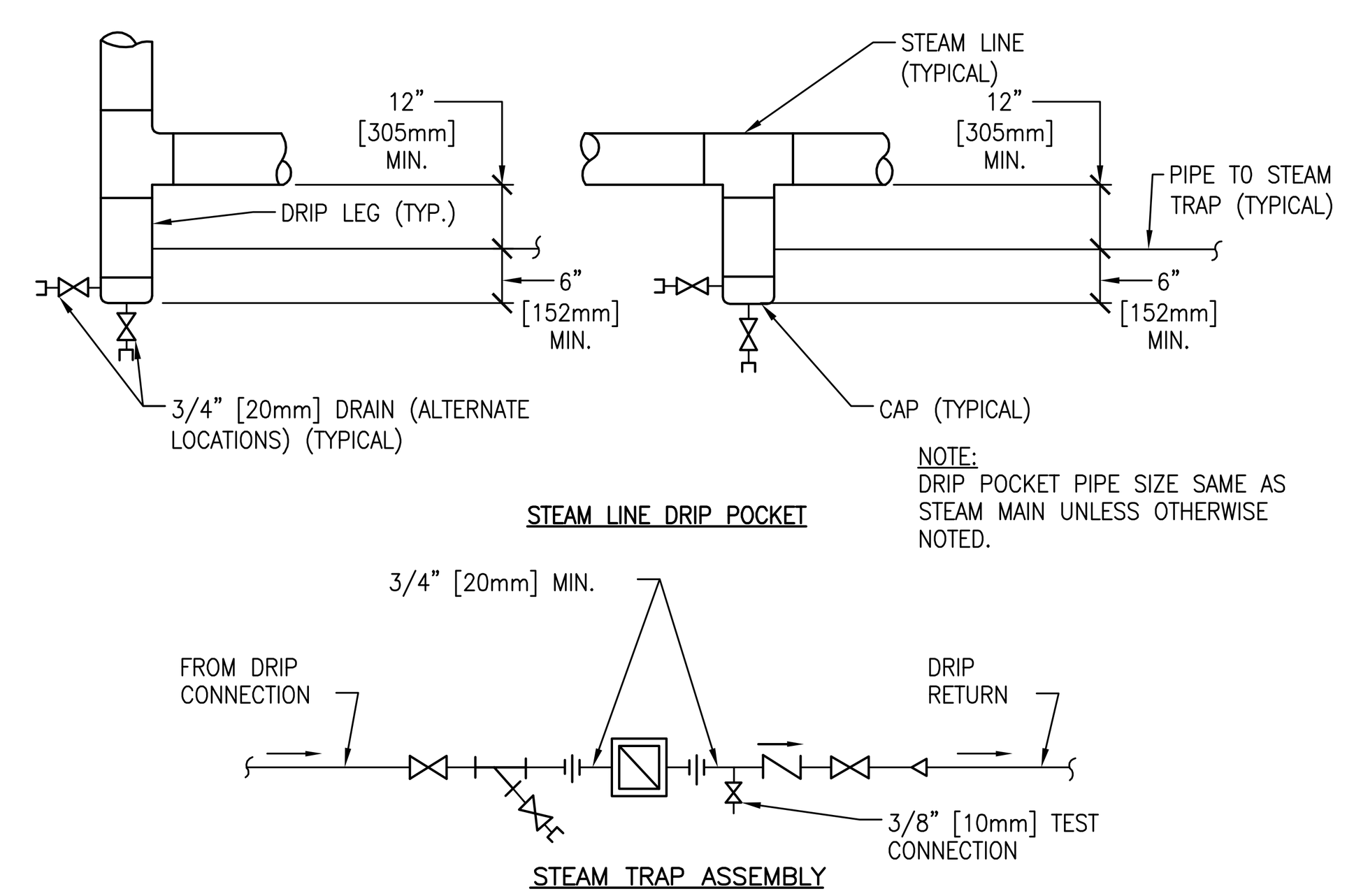
NOTE:
TOP OF CHEMICAL POT FEEDER TANK SHALL NOT BE MORE THAN 4'-0" [1200mm] ABOVE FINISHED FLOOR.

D1 WATER TREATMENT - CLOSED SYSTEMS
SCALE: NTS



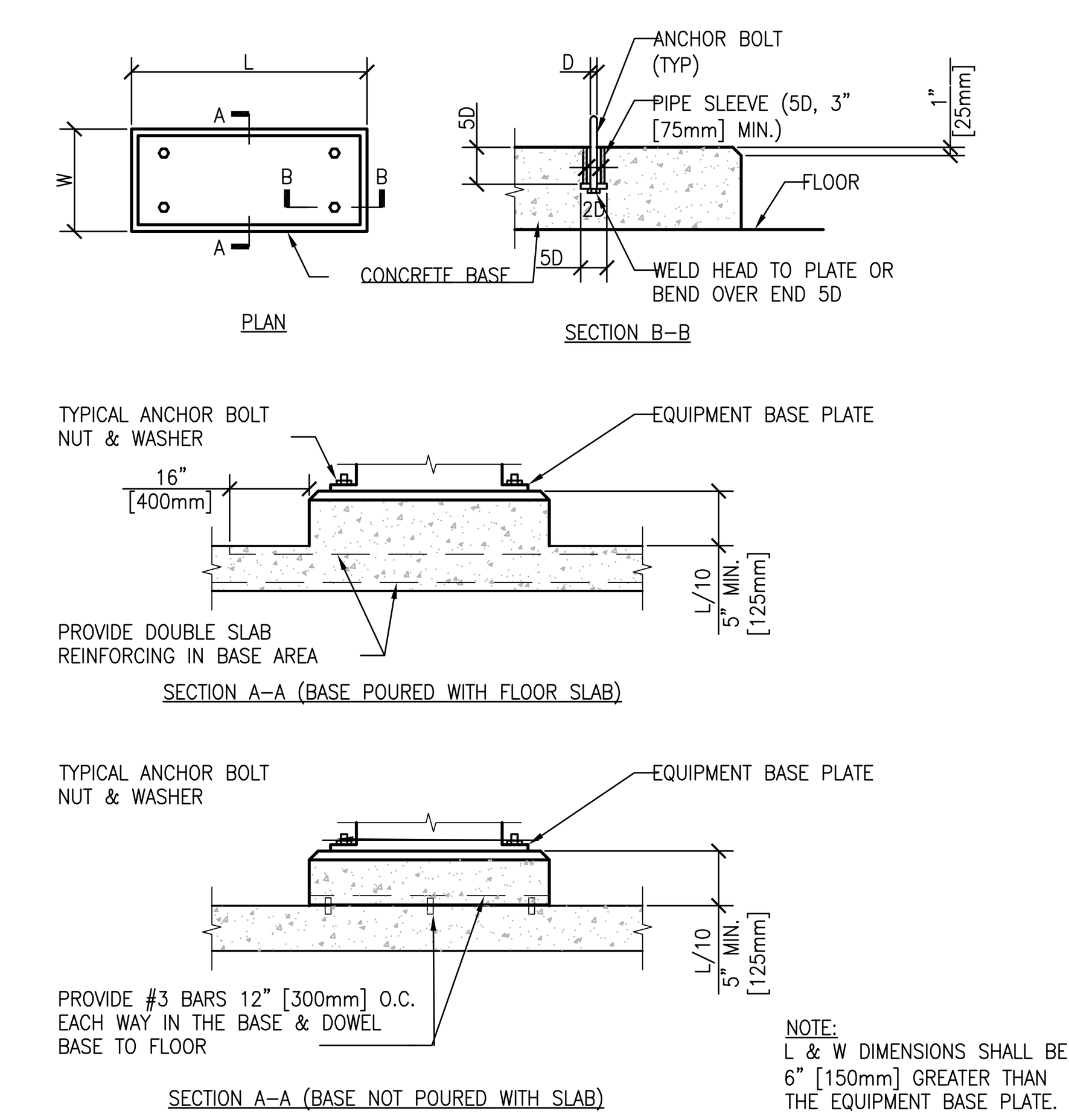
NOTE:
1. SEE EXPANSION TANK SYSTEM SCHEDULE FOR COMPONENT SIZES.
2. SET PRESSURE REDUCING VALVE SO PRESSURE AT HIGHEST POINT IN SYSTEM HAS A MINIMUM OF 4 PSIG [28kPa].

D3 FLOOR MOUNTED EXPANSION TANK -PIPING CONNECTIONS
SCALE: NTS



NOTE:
DRIP POCKET PIPE SIZE SAME AS STEAM MAIN UNLESS OTHERWISE NOTED.

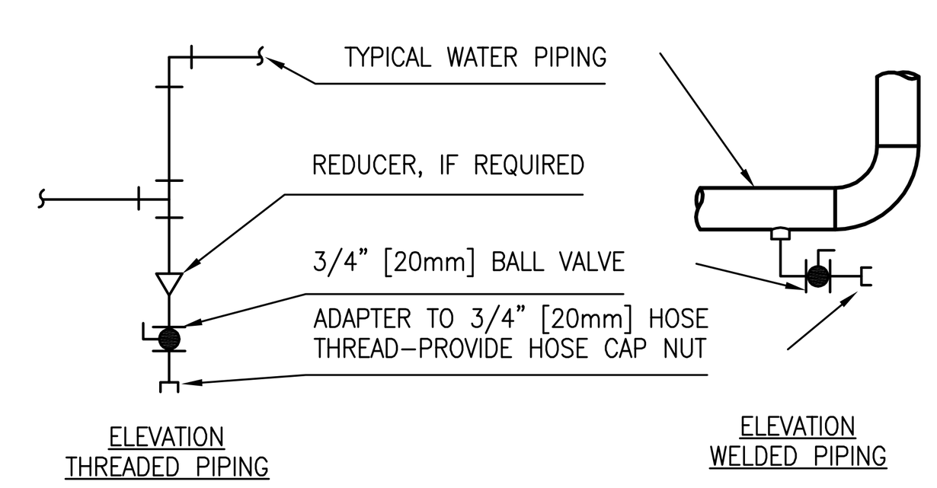
D5 STEAM LINE DRIP POCKET STEAM TRAP ASSEMBLY
SCALE: NTS



NOTE:
L & W DIMENSIONS SHALL BE 6" [150mm] GREATER THAN THE EQUIPMENT BASE PLATE.

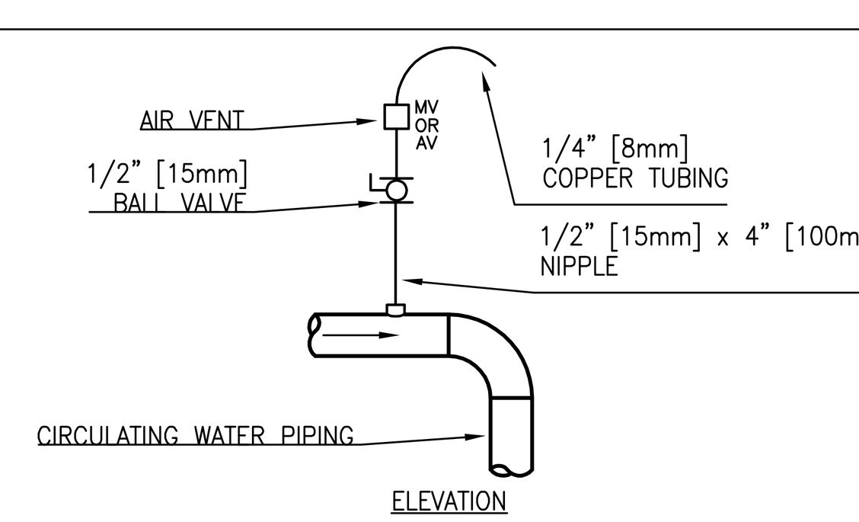
* CONCRETE EQUIPMENT BASE IS/ARE TO BE PAINTED YELLOW. COLOR TO BE APPROVED BY VA.

D8 CONCRETE EQUIPMENT BASES
SCALE: NTS



TYPICAL CHILLED AND HOT WATER PIPING DRAIN VALVE CONNECTIONS

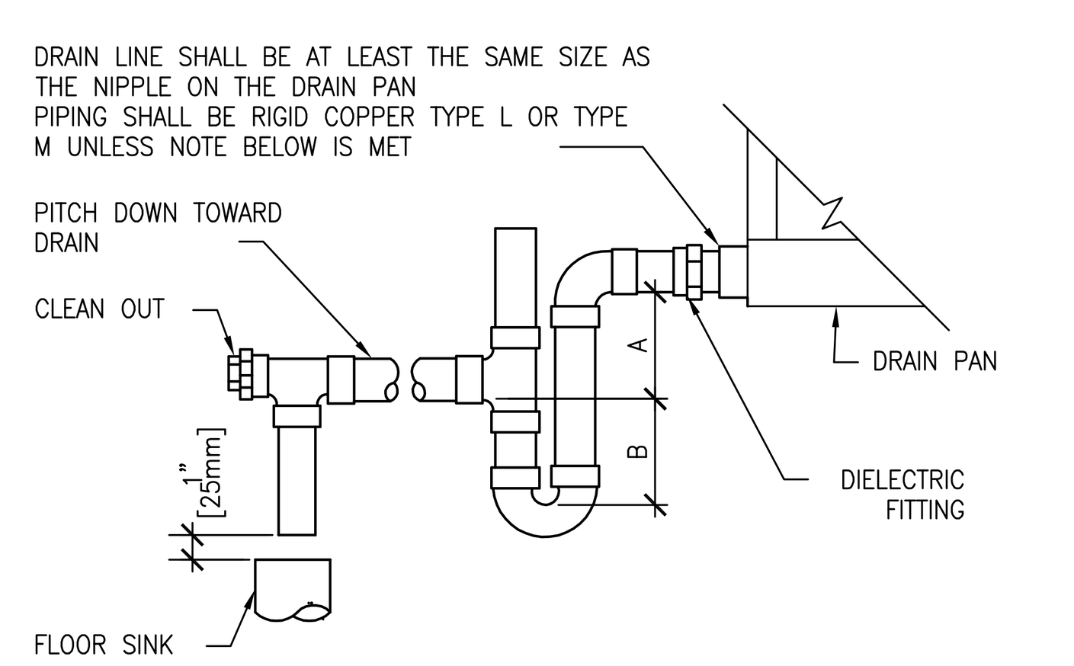
NOTES:
1. DRAIN ALL LOW POINTS AS INDICATED ABOVE.
2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS LOCATE DRAIN AT BOTTOM OF SCALE POCKET.



TYPICAL MANUAL AIR VENT

NOTES:
1. VENT ALL HIGH POINTS INDICATED ABOVE.
2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN.

F1 DRAIN VALVE AND AIR VENT CONNECTIONS (HYDRONIC SYSTEMS)
SCALE: NTS



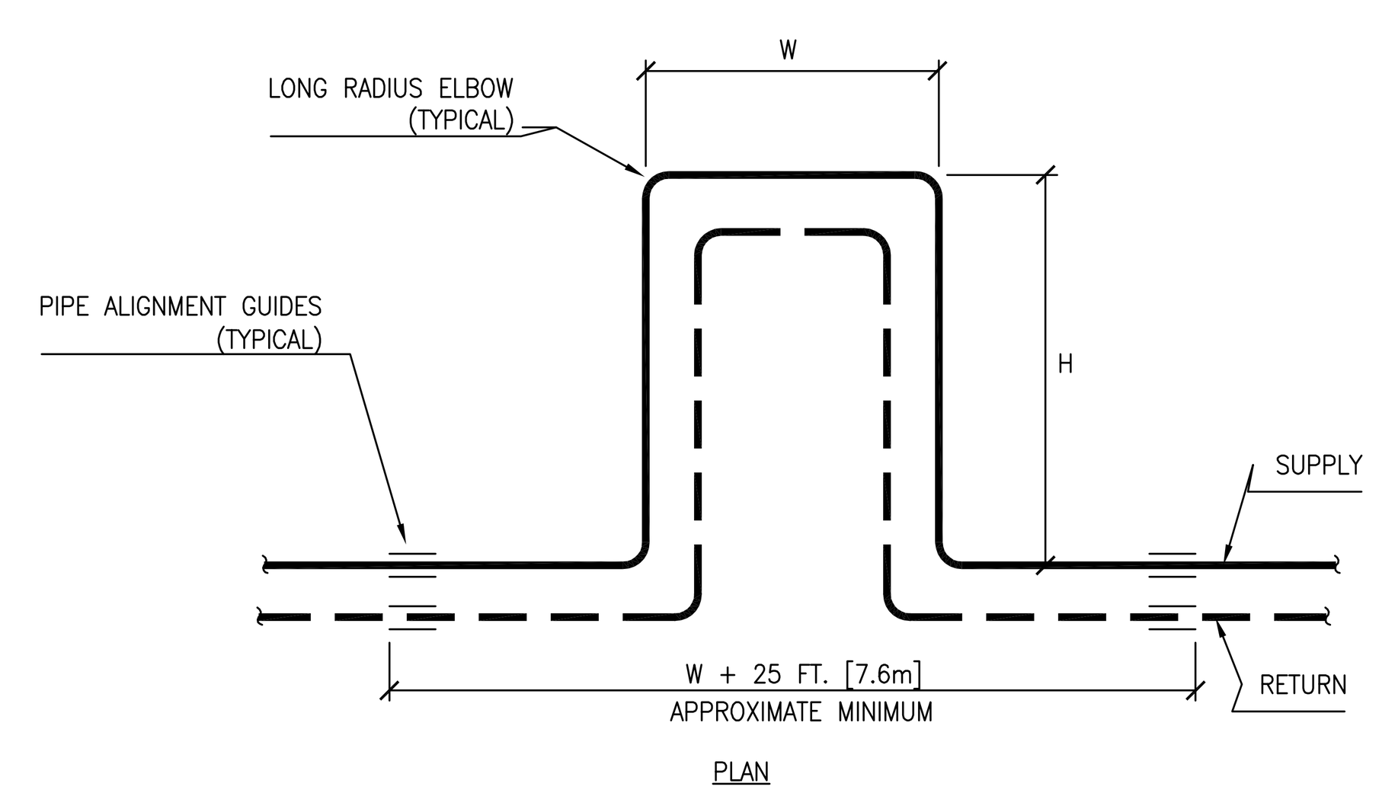
NOTE: 1. CPVC PIPE MAY BE USED ONLY IF APPROVED BY LOCAL VA AND IS INDOORS AND DOES NOT PASS THROUGH RATED BARRIERS.
2. DIELECTRIC FITTING TO BE USED WHEN TWO DISSIMILAR METALS ARE TO BE CONNECTED.

UNIT TYPE	A	B
DRAW THRU	2" [50mm] PLUS X	X
BLOW THRU	1" [25mm] MINIMUM	2X

WHERE X = STATIC PRESSURE IN PAN

PROVIDE SUBMITTAL FOR APPROVAL

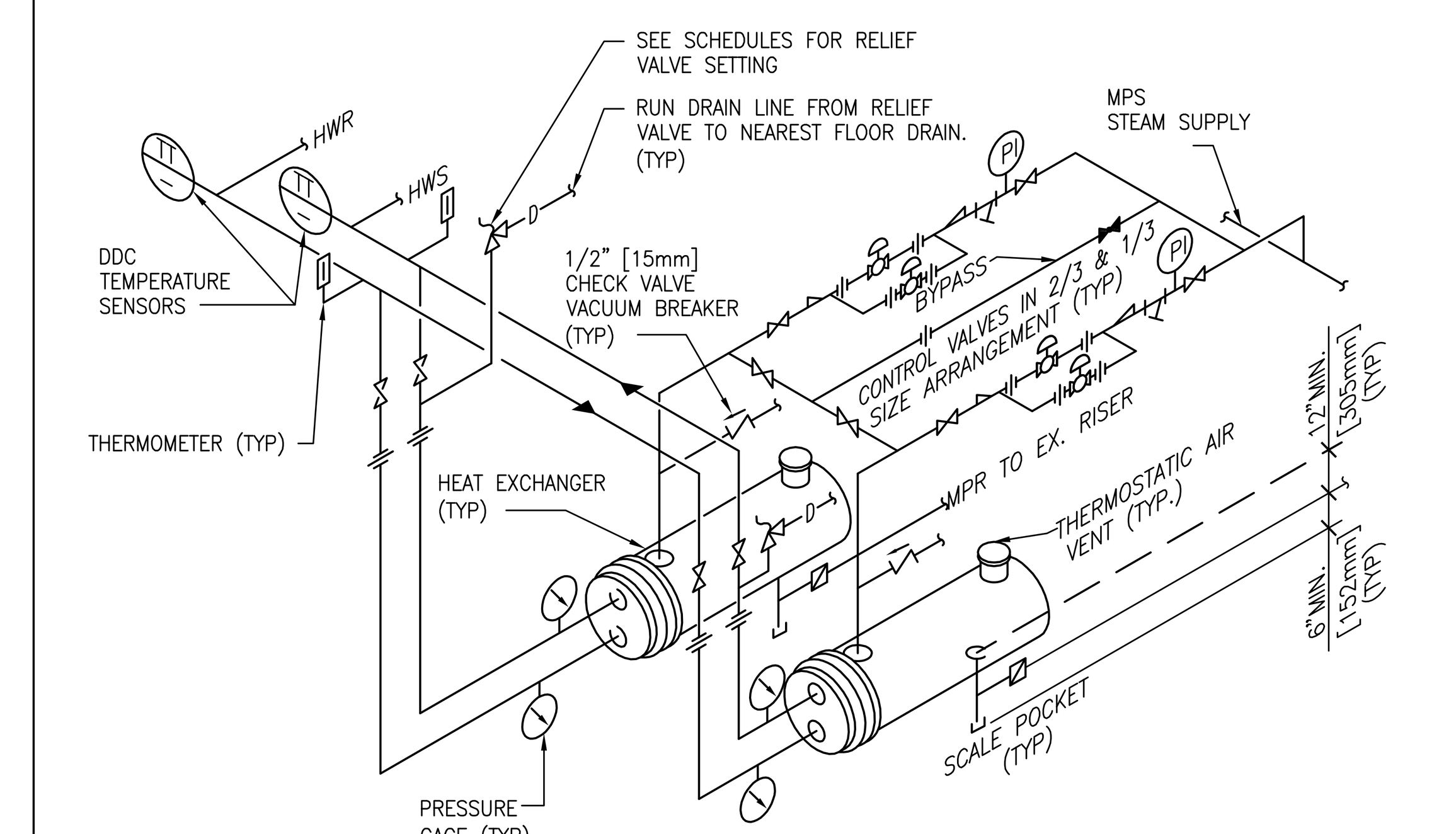
F3 AIR HANDLING UNIT DRAIN TRAP DETAIL
SCALE: NTS



EXPANSION LOOP		
PIPE DIAMETER	W	H
1-1/2"	24"	48"
2"	30"	60"

EXPANSION LOOP DETAIL

F5 EXPANSION LOOP DETAIL
SCALE: NTS



NOTE:
1. THE ABOVE DETAIL SHOWS REQUIRED PIPING FOR TWO HEAT EXCHANGERS IN PARALLEL.
2. PROVIDE SADDLE SUPPORTS AND LEGS OR HANGERS FOR HEAT EXCHANGER. MOUNTING HEIGHT SHALL BE ADJUSTED TO FACILITATE GRAVITY RETURN OF STEAM CONDENSATE.
3. MAKE THE BYPASS THE SAME SIZE AS THE CONNECTIONS TO THE CONTROL VALVES.
4. CONTROL VALVES SHALL BE IN A ⅓ AND ⅔ SIZE ARRANGEMENT.
5. PROJECT SPECIFIC INSTALLATION: MOUNT HEAT EXCHANGERS VERTICALLY, ONE ABOVE THE OTHER.

F8 HEAT EXCHANGER - STEAM TO HOT WATER
SCALE: NTS

BUILDING IS FULLY SPRINKLERED — Scale: AS NOTED

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

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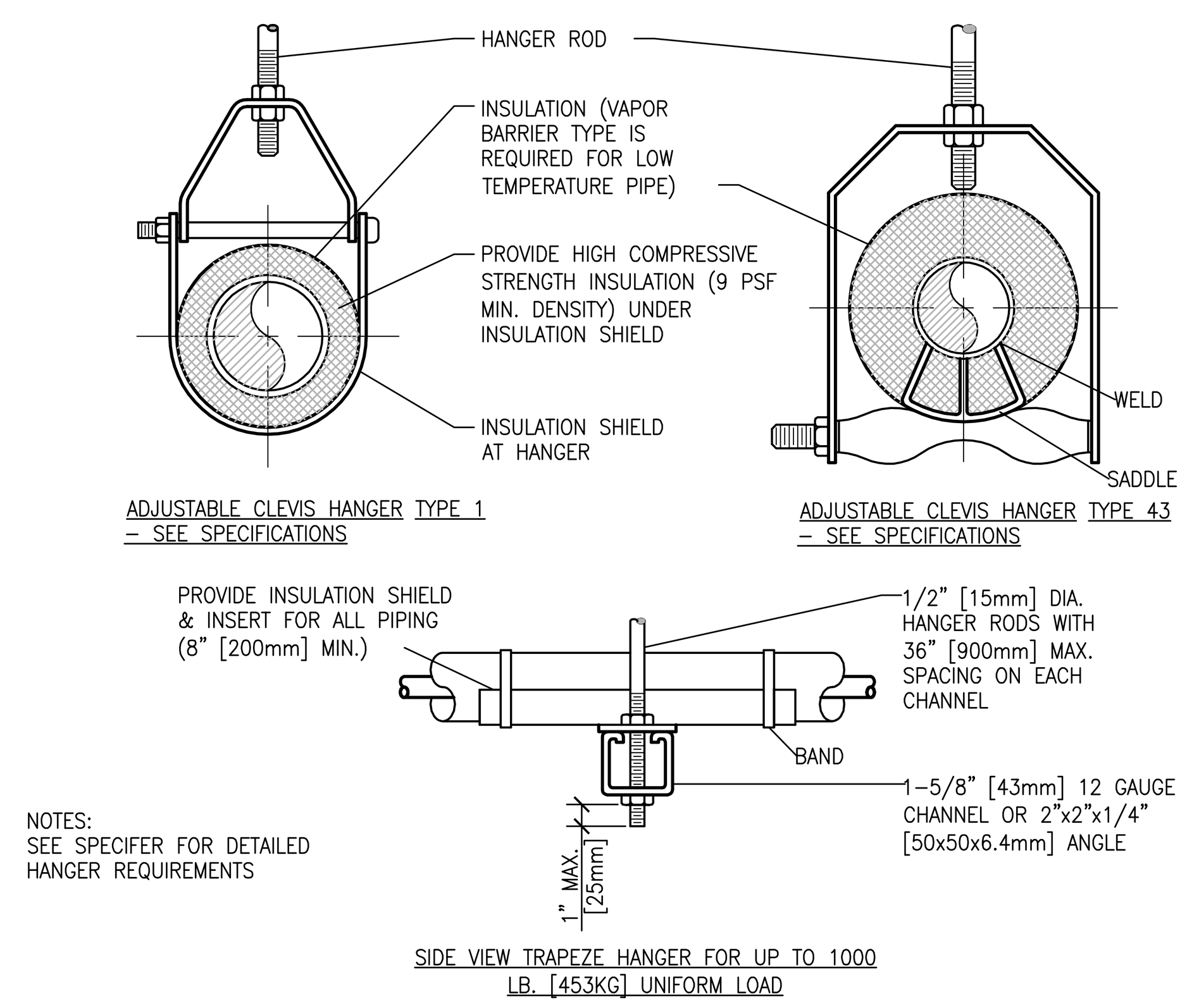
St. Louis ■ San Francisco ■ Shanghai ■ Toronto
Vancouver ■ Victoria ■ Washington DC

Drawing Title: MECHANICAL DETAILS 2
Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS
Location: 423 EAST 23RD STREET NEW YORK, NY 10010
Date: AUGUST 15, 2013 | Checked: JB | Drawn: JRC

Project Number: 630PR2600
Building Number: 1
Drawing Number: 1-MH502

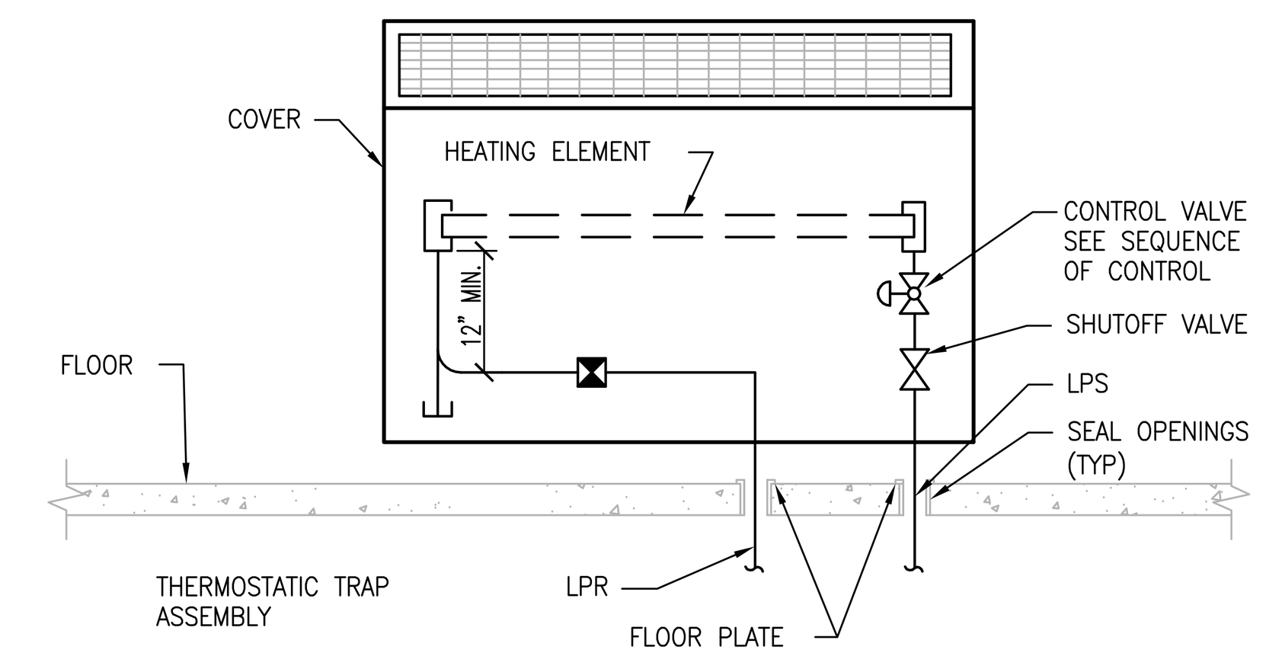
Office of Construction & Facilities Management
VA U.S. Department of Veterans Affairs



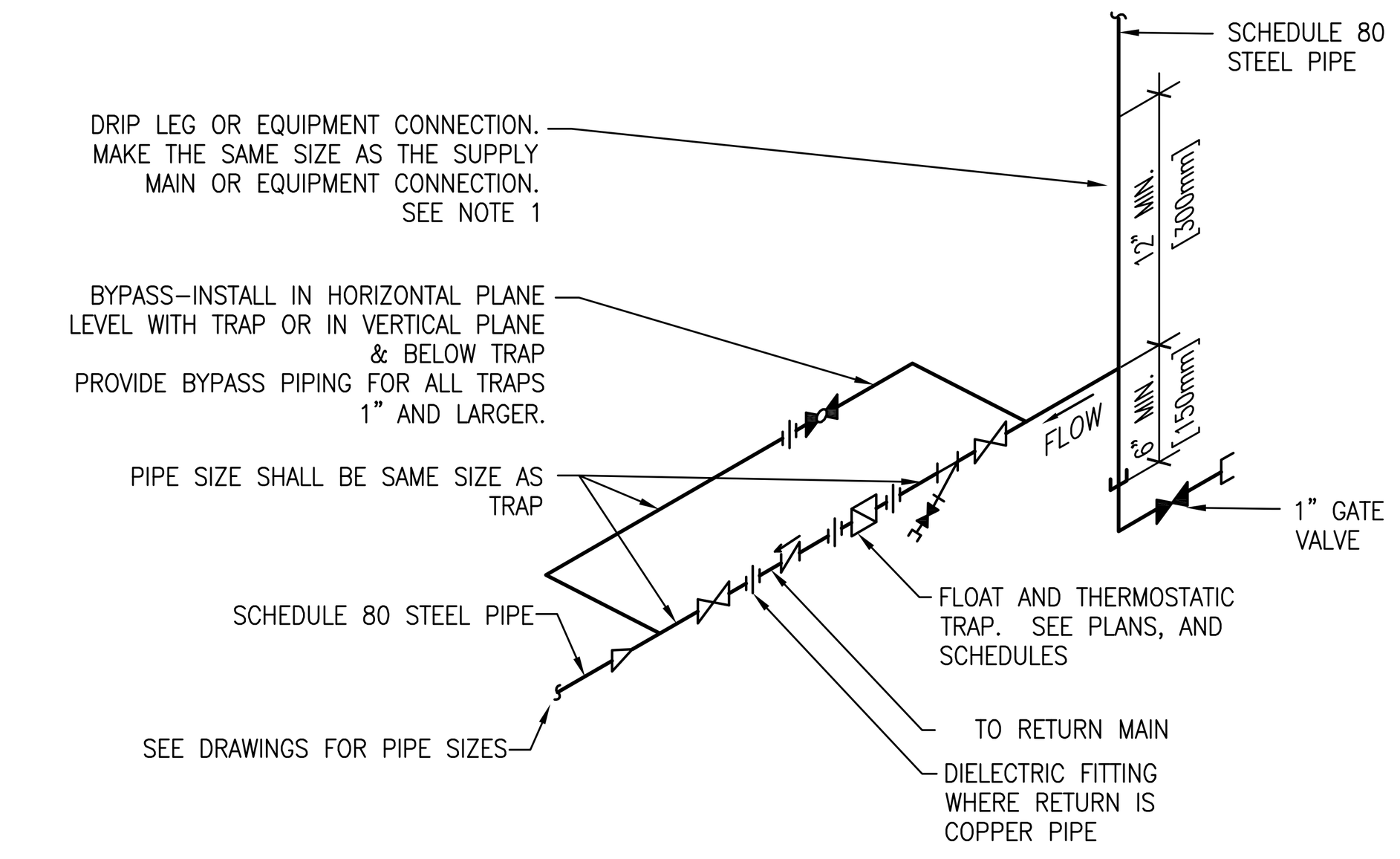
NOTES:
SEE SPECIFER FOR DETAILED HANGER REQUIREMENTS

MAXIMUM PIPE/TUBING SUPPORT SPACING																			
NOM. SIZE	IN. [mm]	THRU 3/4 THRU [20]	1 [25]	1 1/4 [32]	1 1/2 [40]	2 [50]	2 1/2 [65]	3 [75]	4 [100]	5 [125]	6 [150]	8 [200]	10 [250]	12 [300]	14 [350]	16 [400]	18 [450]	20 [500]	24 [600]
PIPE	FT. [mm]	7 [2100]	7 [2100]	7 [2100]	9 [2700]	10 [3000]	11 [3400]	12 [3700]	14 [4100]	16 [4900]	17 [5200]	19 [5800]	22 [6700]	23 [7000]	25 [7600]	27 [8200]	28 [8500]	30 [9100]	32 [9600]
TUBING	FT. [mm]	5 FT [1500]	6 [1800]	7 [2100]	8 [2400]	8 [2400]	9 [2700]	10 [3000]	12 [3700]	13 [4000]	14 [4100]	16 [4900]	–	–	–	–	–	–	–
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.																			

C1 PIPE HANGERS
SCALE: NTS



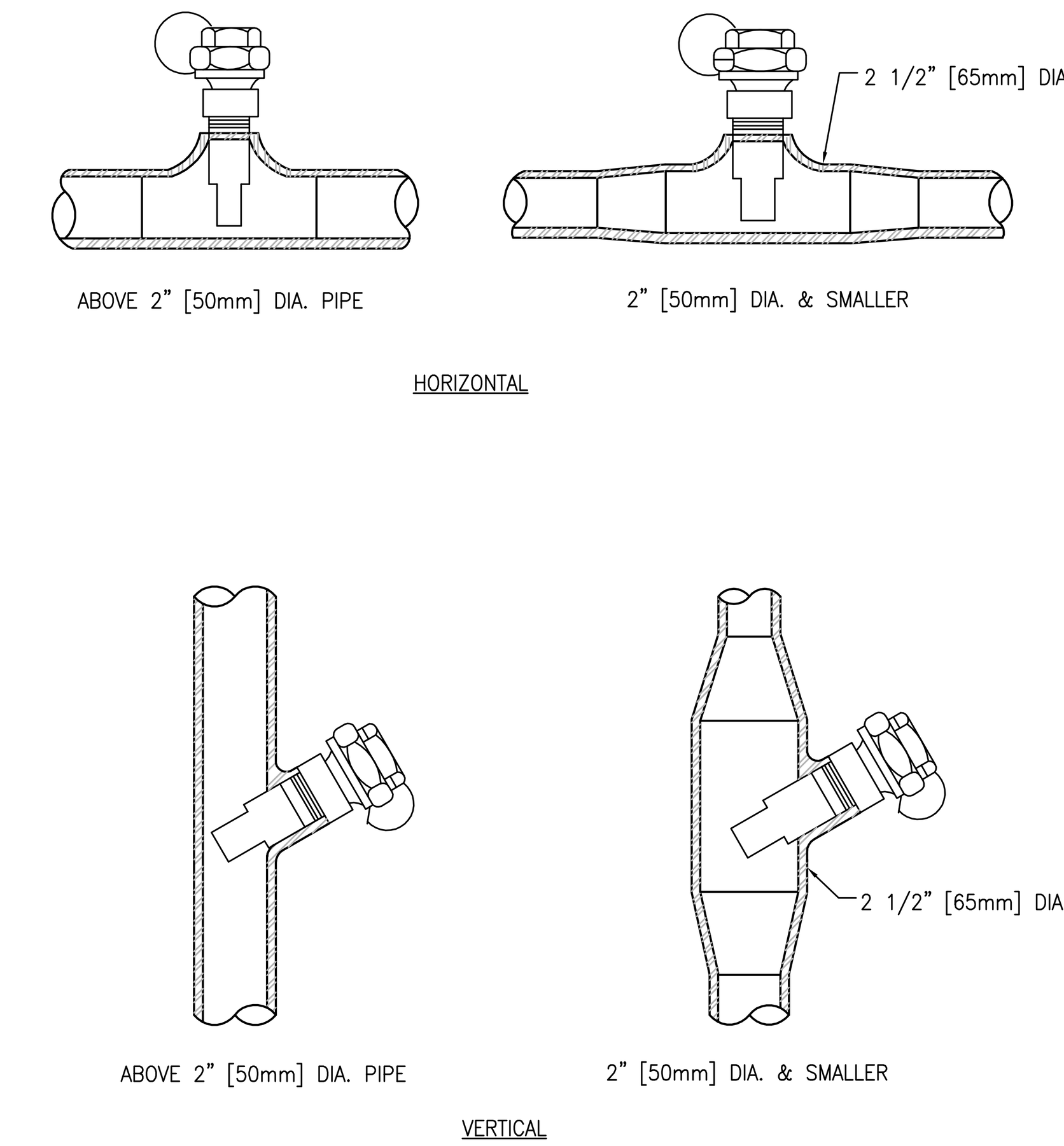
B3 CONVECTOR-STEAM PIPING CONNECTION
SCALE: NTS



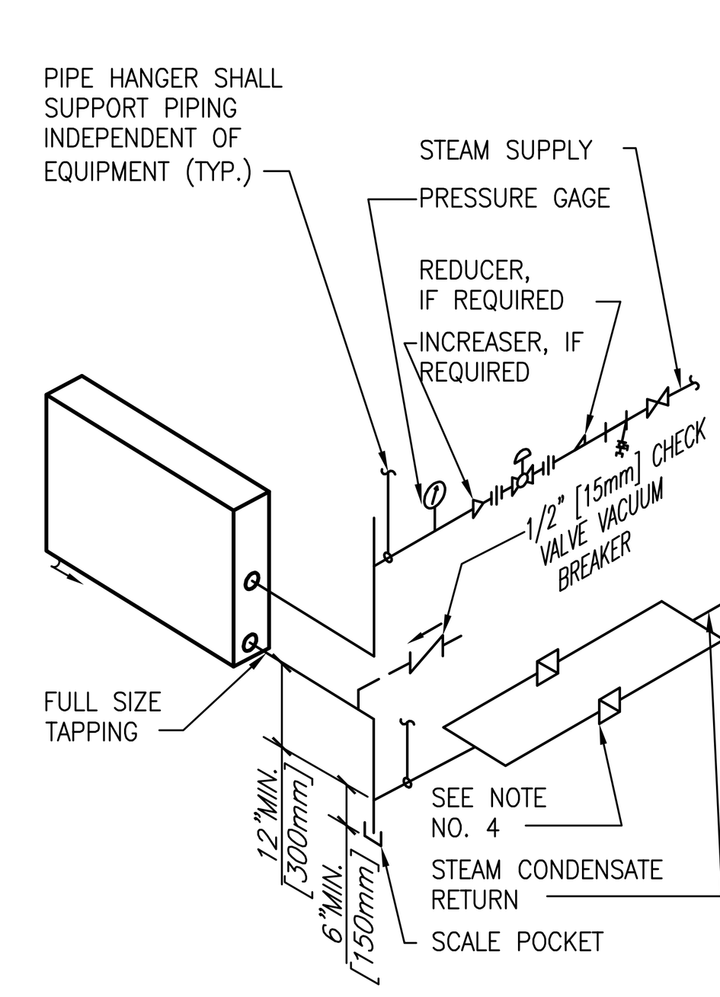
NOTE:

1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 12" MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 6" SCALE POCKET BELOW TRAP INLET.

B5 FLOAT AND THERMOSTATIC STEAM TRAP ASSEMBLY
SCALE: NTS



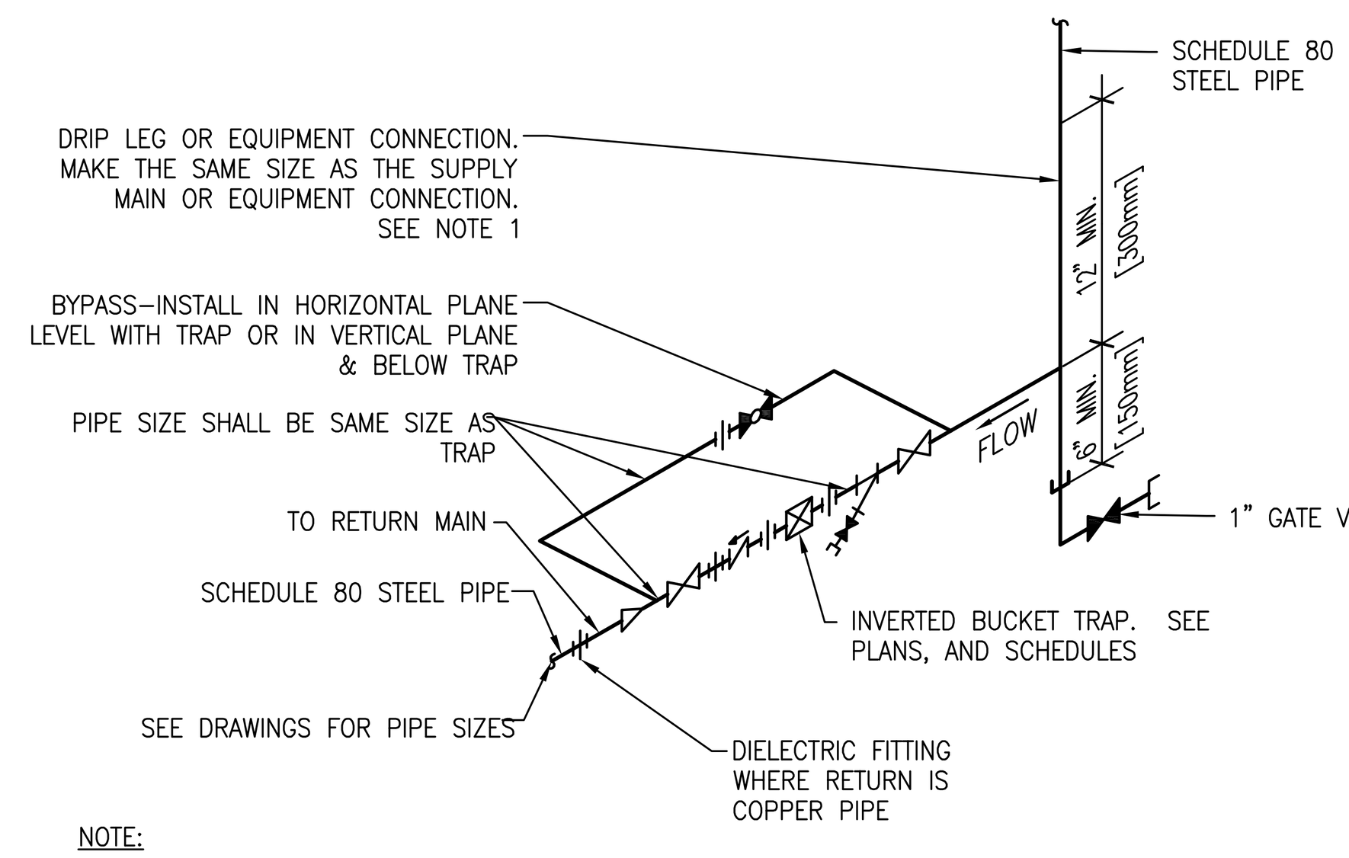
B8 INSTALLATION OF THERMOMETER WELLS
SCALE: NTS



NOTE:

1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATOR UNITS, THE RUNOUT PIPING FOR CONNECTIONS TO EQUIPMENT SHALL BE INSTALLED WITH SWING JOINTS TO ALLOW FOR THE VIBRATION.
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALVES, OR EQUIPMENT.
3. TRAP EACH DEVICE SEPARATELY WHEN INSTALLED IN A BANK OF TWO OR MORE HIGH. ALSO PROVIDE SEPARATE VACUUM BREAKER FOR EACH COIL.
4. TWO TRAP ASSEMBLIES IN PARALLEL ARE SHOWN. TWO TRAPS REQUIRED WHEN CONDENSATE LOAD IS 5,000 LBS/HR [2400 KG/HR] OR GREATER.
5. SUPPLY & RETURN PIPES ARE SHOWN FROM SAME END. REHEAT COIL MAY HAVE SUPPLY & RETURN PIPES FROM OPPOSITE ENDS.

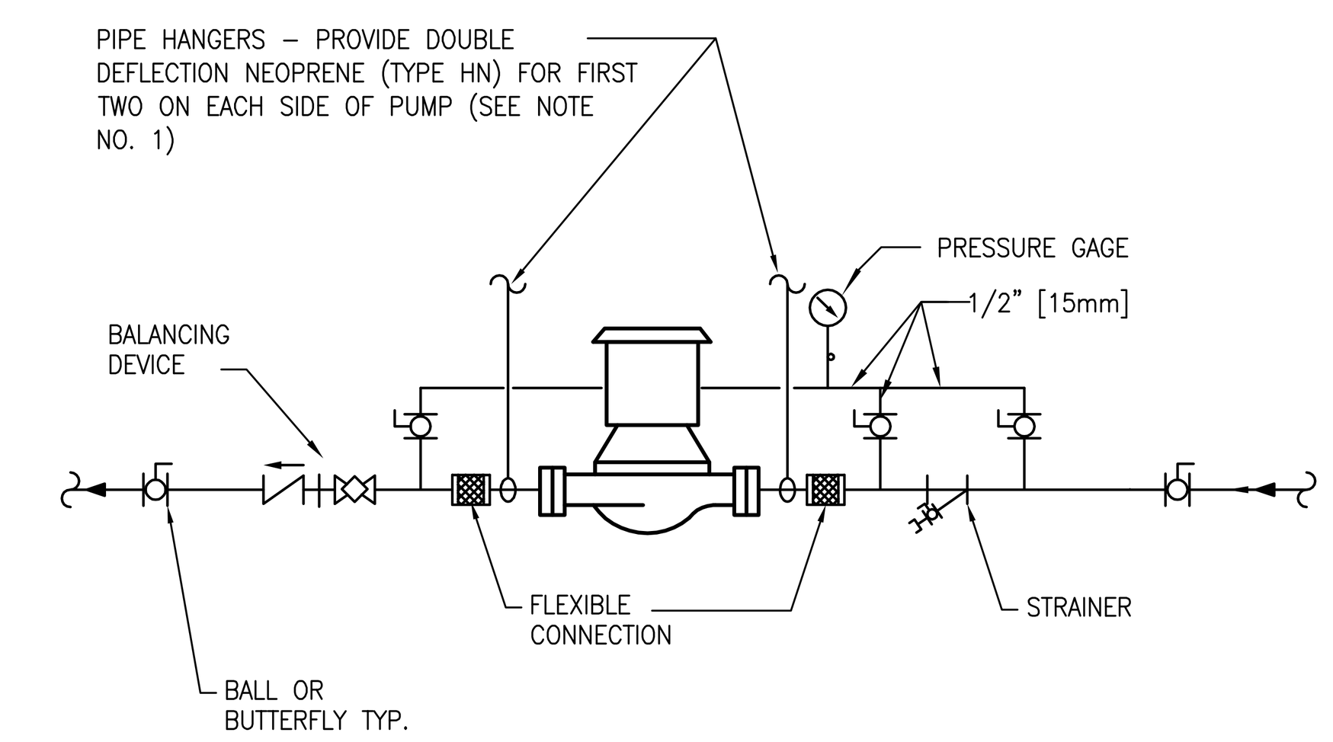
D3 STEAM EQUIPMENT - PIPING CONNECTIONS
SCALE: NTS



NOTE:

1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 12" MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 6" SCALE POCKET BELOW TRAP INLET.
2. PROVIDE BYPASS PIPING.

D5 INVERTED BUCKET STEAM TRAP ASSEMBLY
SCALE: NTS

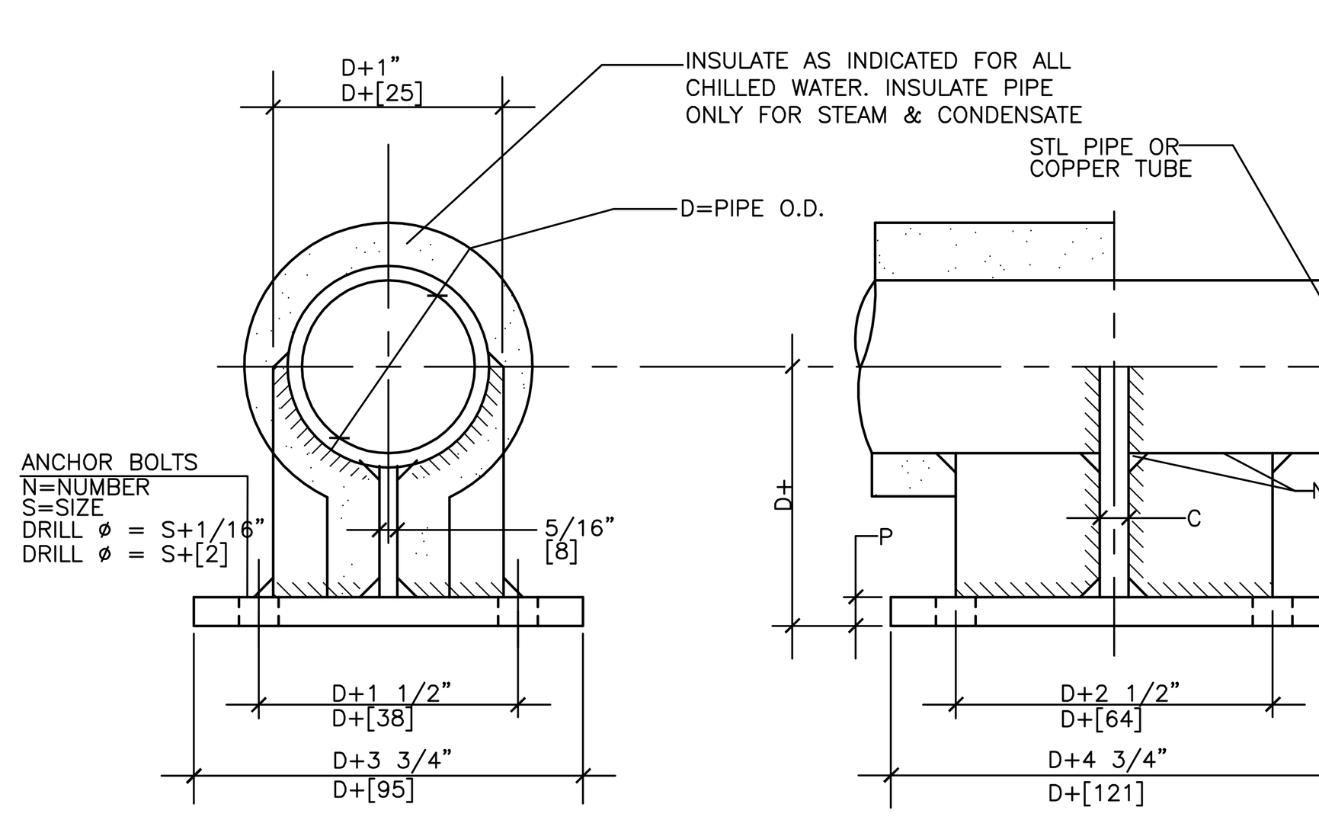


NOTES:

1. SUPPORT PUMP FROM PIPING ONLY. DO NOT SUPPORT PUMP FROM MOTOR.

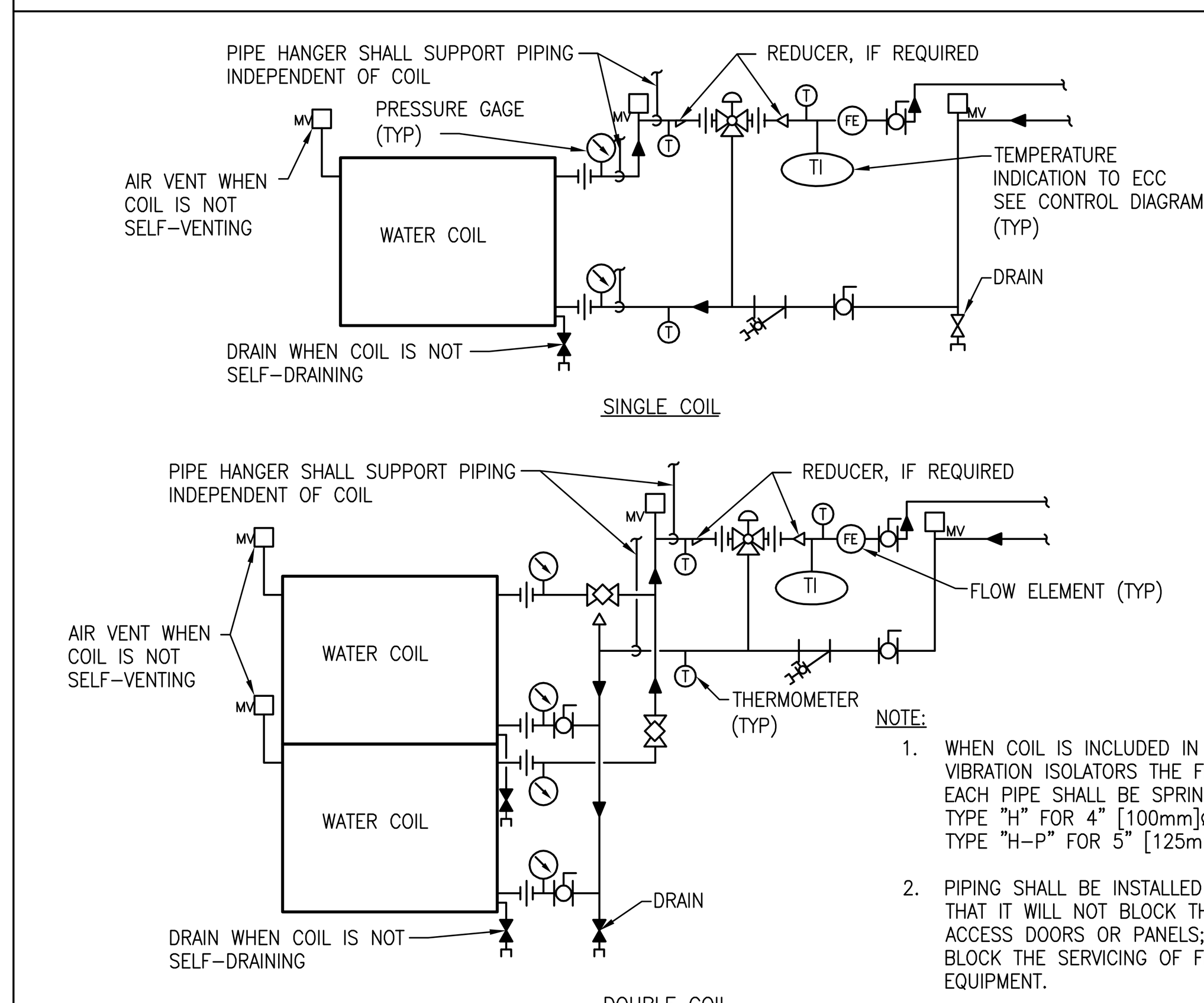
D8 IN-LINE PUMPS - CONNECTIONS
SCALE: NTS

PIPE ANCHOR SCHEDULE										
D		P		C		N		S		BOLT PATTERN
IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	
4"	102	5/8"	16	3/4"	19	4"	102	3/4"	19	
3"	76	1/2"	13	1/2"	13	4"	102	5/8"	16	
2 1/2"	64	3/8"	10	3/8"	10	4"	102	5/8"	16	
2"	51	3/8"	10	3/8"	10	4"	102	5/8"	16	
1 1/2"	38	3/8"	10	1/4"	6	4"	102	1/2"	13	



NOTE:
a.WHERE USED FOR COPPER TUBE OR PIPE, BRAZE TO FABRICATED STEEL ANCHOR

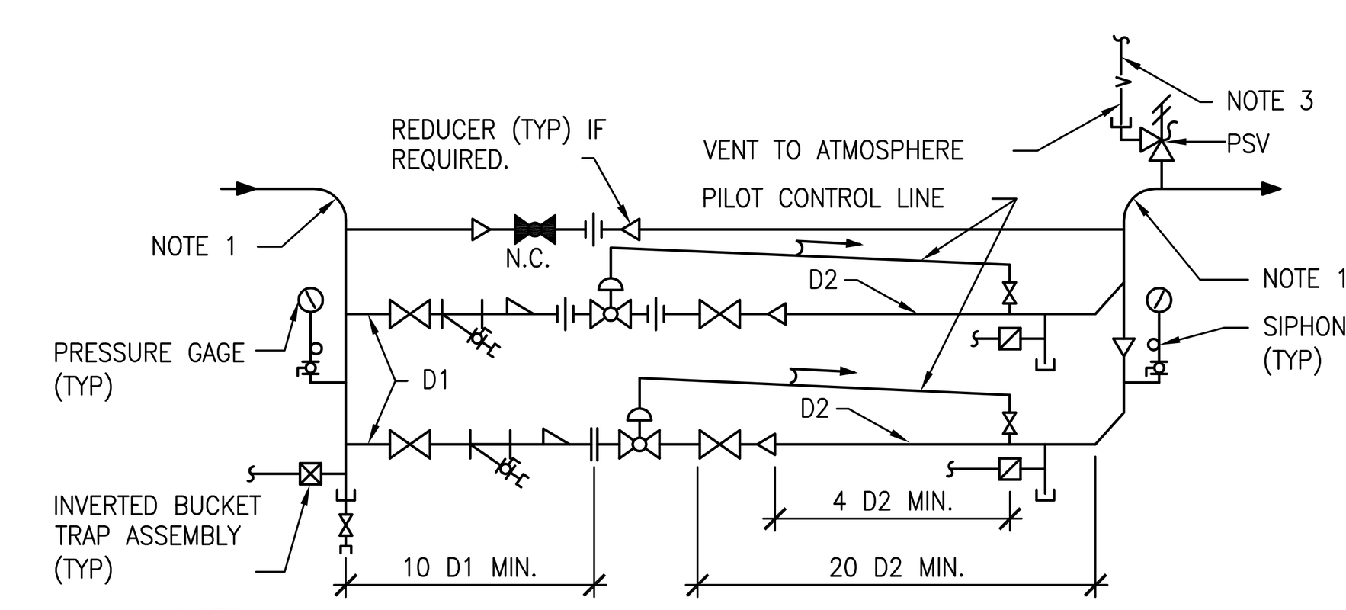
F1 SMALL PIPE ANCHOR 1 1/2"- 4"
SCALE: NTS



NOTE:

1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATORS THE FIRST 2 HANGERS FOR EACH PIPE SHALL BE SPRING & NEOPRENE TYPE. TYPE "H" FOR 4" [100mm]ø PIPE & SMALLER. TYPE "H-P" FOR 5" [125mm]ø PIPE & LARGER.
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALES, OR EQUIPMENT.
3. THE FLOW ELEMENT MAY BE INSTALLED IN THE SUPPLY PIPING IF THE REQUIRED MINIMUM UPSTREAM AND DOWNSTREAM DIMENSIONS CANNOT BE OBTAINED IN THE RETURN PIPING.

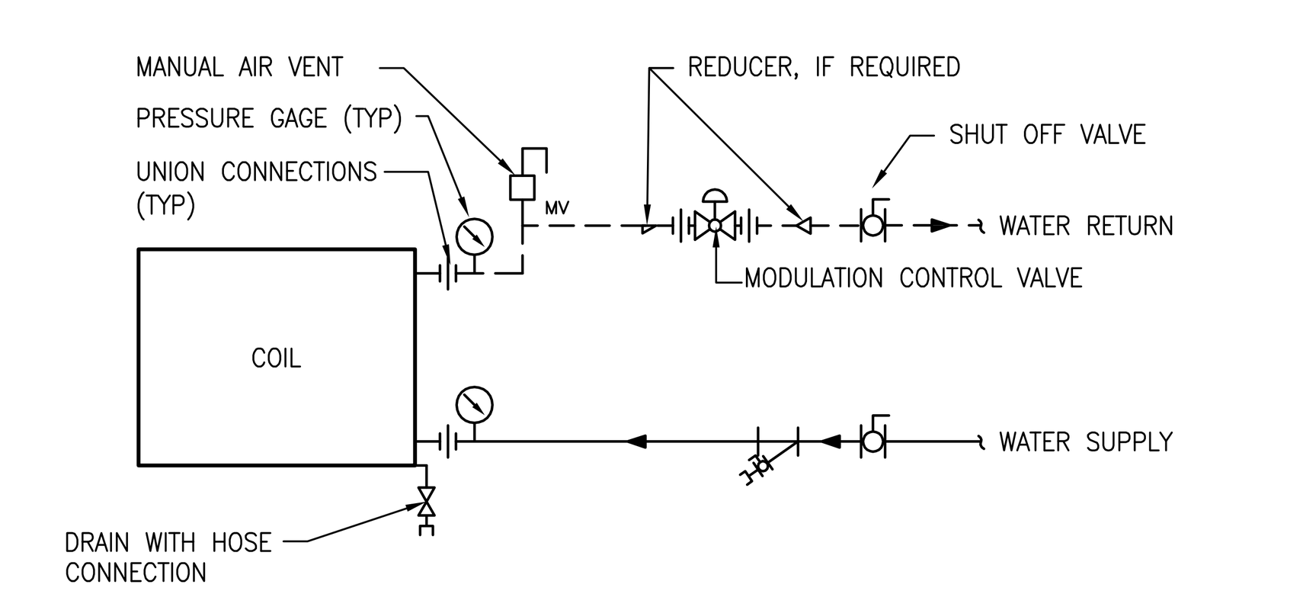
F3 WATER COILS - PIPING CONNECTIONS
SCALE : NTS



NOTE:

1. SEE FLOOR PLANS FOR PIPE SIZES.
2. SEE EQUIPMENT SCHEDULES FOR VALVE DATA AND PIPE SIZES D1 AND D2. INSTALL VALVES AS RECOMMENDED BY MANUFACTURER.
3. MAKE BYPASS VALVE DISCHARGE PIPE THE SAME SIZE AS D2 FOR THE LARGEST PRV.
4. PROVIDE NECESSARY UNIONS FOR THE REMOVAL OF VALVE WITH SCREWED CONNECTIONS.

F5 STEAM PRESSURE REDUCING STATION DOUBLE VALVE (1/3 AND 2/3)
SCALE: NTS



F8 TERMINAL UNIT WATER COILS -PIPING CONNECTIONS
SCALE: NTS

BUILDING IS FULLY SPRINKLERED
Scale: AS NOTED

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

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Drawing Title: MECHANICAL DETAILS 3
Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS
Location: 423 EAST 23RD STREET NEW YORK, NY 10010
Date: AUGUST 15, 2013
Checked: JB
Drawn: JRC
Project Number: 630PR2600
Building Number: 1
Drawing Number: 1-MH503

Office of Construction & Facilities Management
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VA FORM 08-6231

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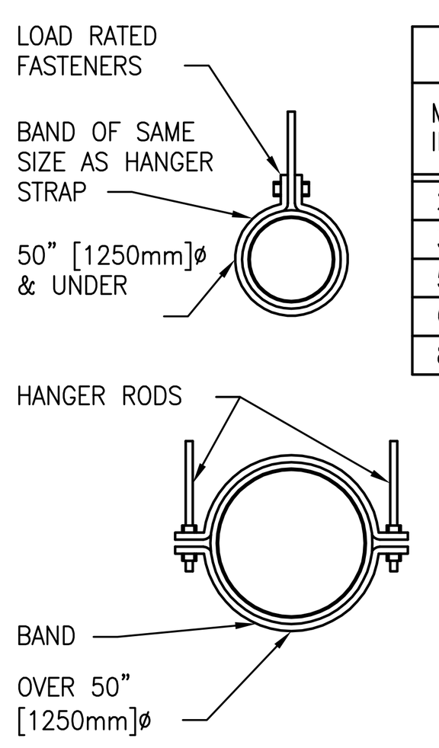
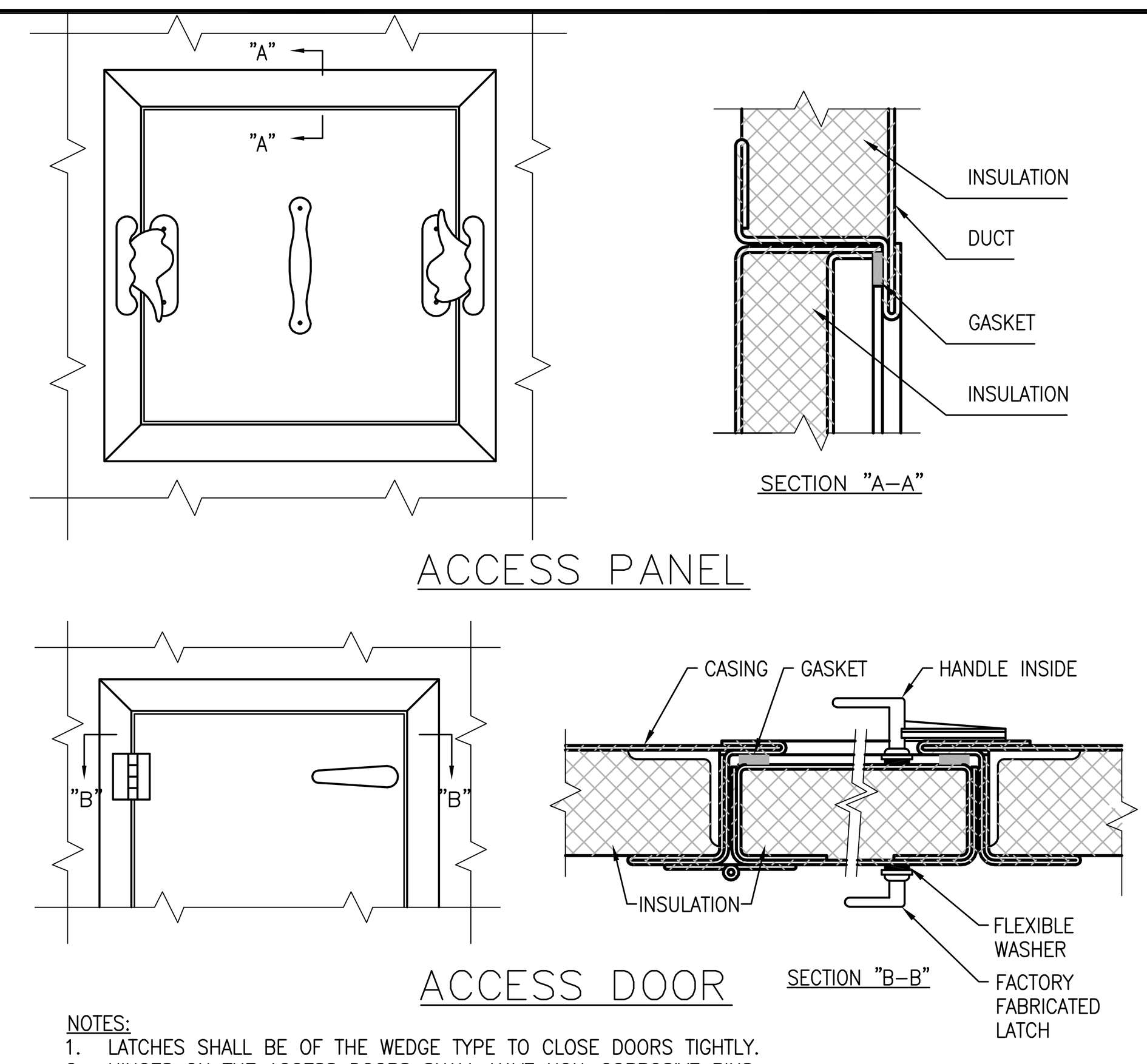


HANGER STRAPS OR RODS			
MAX. DUCT ø IN. [mm]	QUANTITY/SIZE IN. [mm]	MAX. LOAD LBS. [kg]	MAX. SPACING IN. [mm]
26 [650]	ONE 1 [25] x 22 GA STRAP	260 [119]	144 [3600]
36 [900]	ONE 1 [25] x 18 GA STRAP	420 [190]	144 [3600]
50 [1250]	ONE 1 [25] x 16 GA STRAP	700 [317]	144 [3600]
60 [1500]	TWO 3/8 [10]ø. RODS	1320 [598]	144 [3600]
84 [2100]	TWO 1/2 [13]ø RODS	2500 [1133]	144 [3600]

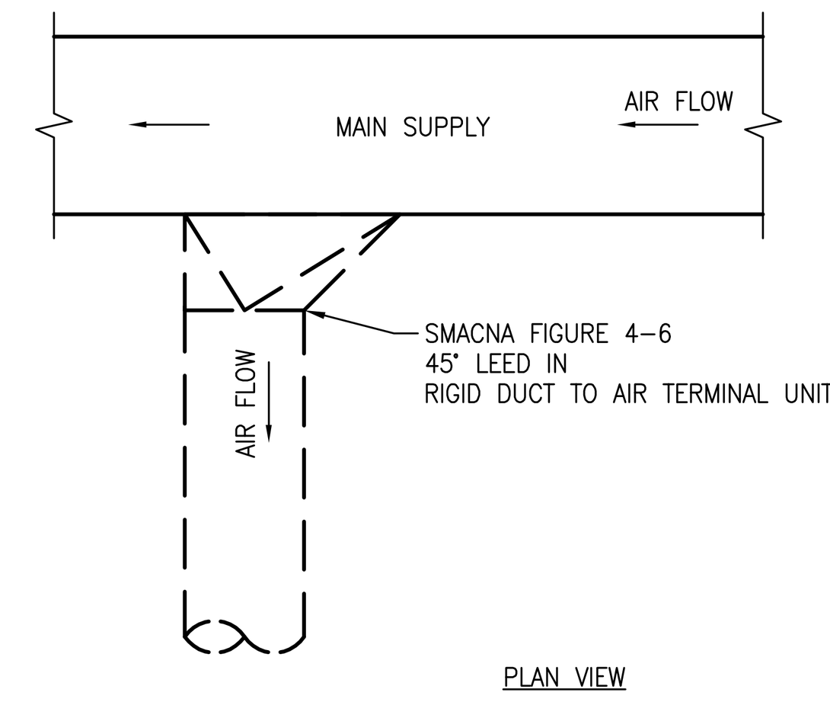
NOTE:
TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

B1 ROUND DUCT HANGERS
SCALE: NTS

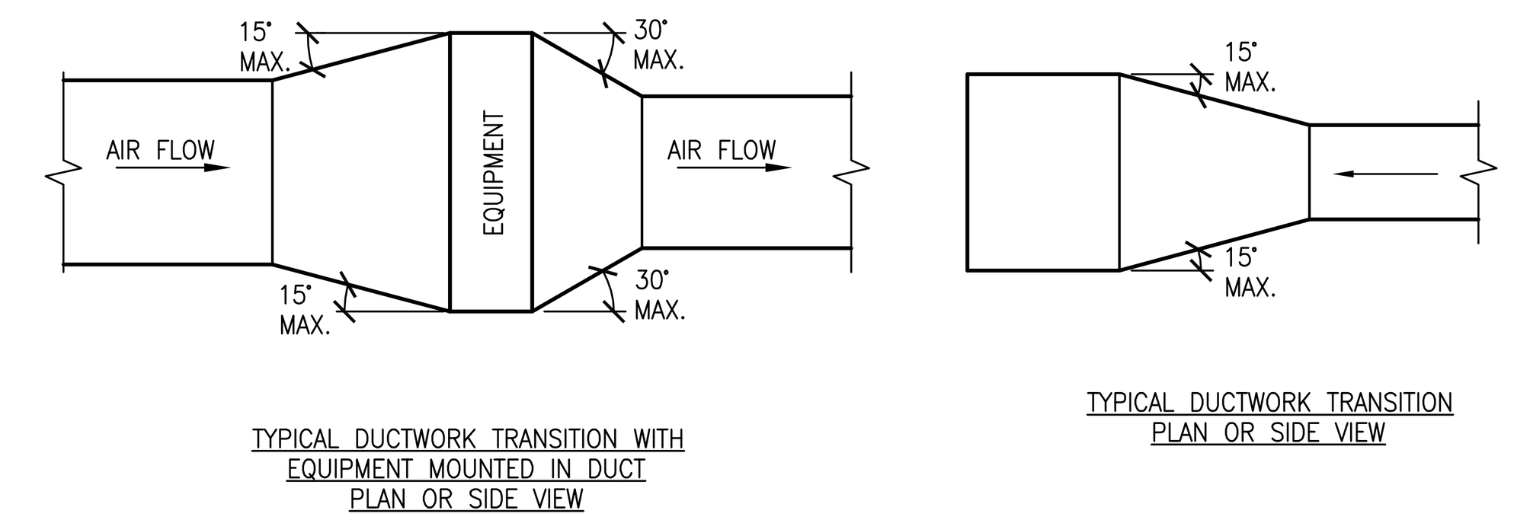


NOTES:
1. LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
2. HINGES ON THE ACCESS DOORS SHALL HAVE NON–CORROSIVE PINS.
3. SEE SMACNA 2005, FIGURE 9–15

B3 ACCESS PANEL AND DOOR DETAIL
SCALE: NTS

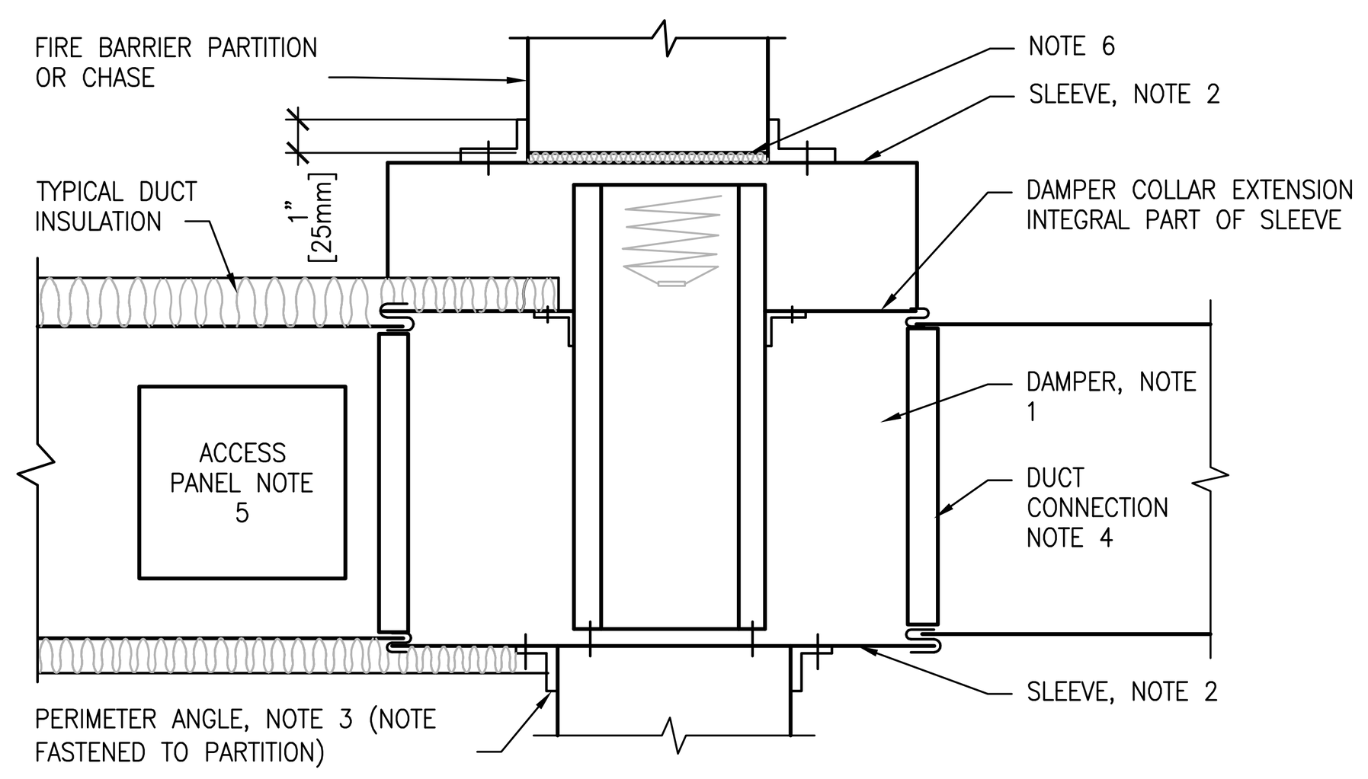


B5 ALTERNATE SUPPLY DUCT TAKEOFF - AIR TERMINAL UNITS
SCALE: NTS



NOTE:
UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

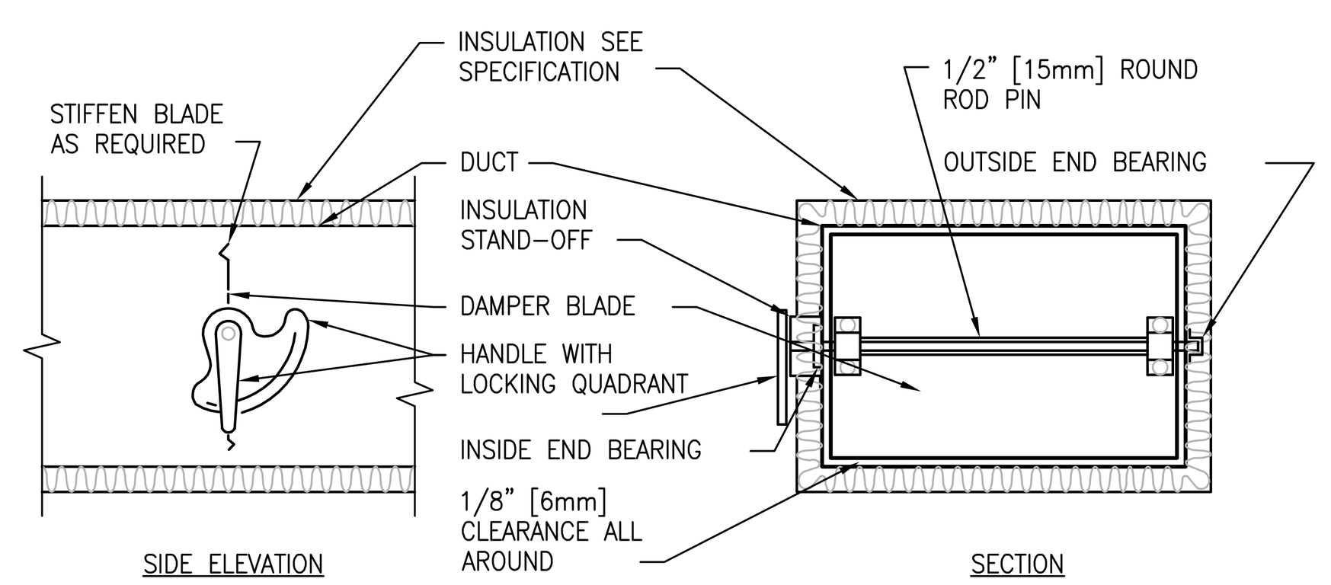
B8 DUCTWORK TRANSITIONS (WITH EQUIPMENT MOUNT IN DUCT)
SCALE: NTS



NOTE:

1. A VERTICAL DAMPER IS SHOWN. HORIZONTAL DAMPER INSTALLATION, 1S SIMILAR. FOLLOW DAMPER MANUFACTURER'S INSTRUCTIONS, INCLUDING FASTENER OPTIONS AND GAGES FOR SLEEVE AND PERIMETER ANGLES. FIRE DAMPERS MUST BE INSTALLED IN THE PARTITION OR FLOOR AND NOT OUTSIDE THE PENETRATION.
2. GALVANIZED SLEEVE: GAGE NOT LESS THAN CONNECTING DUCT. FASTEN SLEEVE TO DAMPER FRAME AND TO PERIMETER ANGLES.
3. PERIMETER ANGELS: GALVANIZED STEEL, NOT LESS THAN 1 1/2"x1 1/2" [40x40mm], 14 GAGE, TO PROVIDE 1" [25mm] MINIMUM OVERLAP OF OPENING ON ALL 4 SIDES.
4. BREAKAWAY DUCT CONNECTION: CONTRACTOR'S OPTION OF TYPES SHOWN IN SMACNA. ACCESS PANELS: SIZE AND LOCATION TO PERMIT SERVICING THE FUSIBLE LINK OR LINKS.
5. PROVIDE 1/4" TO 1/2" [6 TO 15mm] CLEARANCE ON HEIGHT AND WIDTH. FILL OPEN SPACE WITH ROCK WOOL FIRESTOP FIBER.
6. ALL DUCT WORK RISERS WHICH ARE RUN EXPOSED, SUCH AS THRU ATTIC FLOORS AND MECHANICAL ROOM FLOORS, SHALL BE PROVIDED WITH 3" [75mm] HIGH CONCRETE CURB AROUND OPENING FOR DUCT.

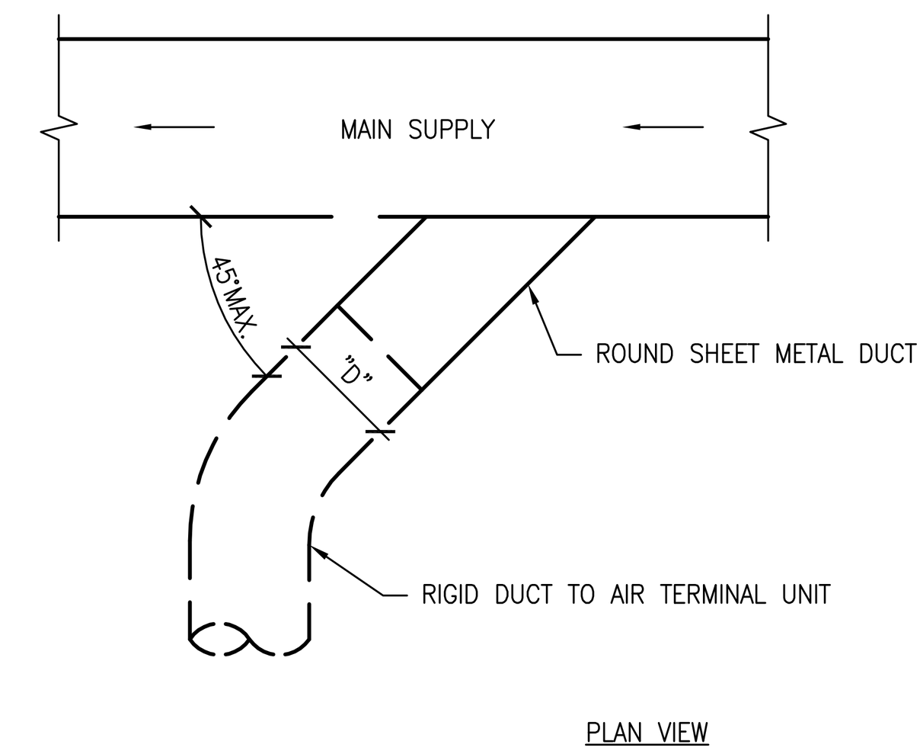
D1 SECTION THROUGH FIRE DAMPER INSTALLATION
SCALE: NTS



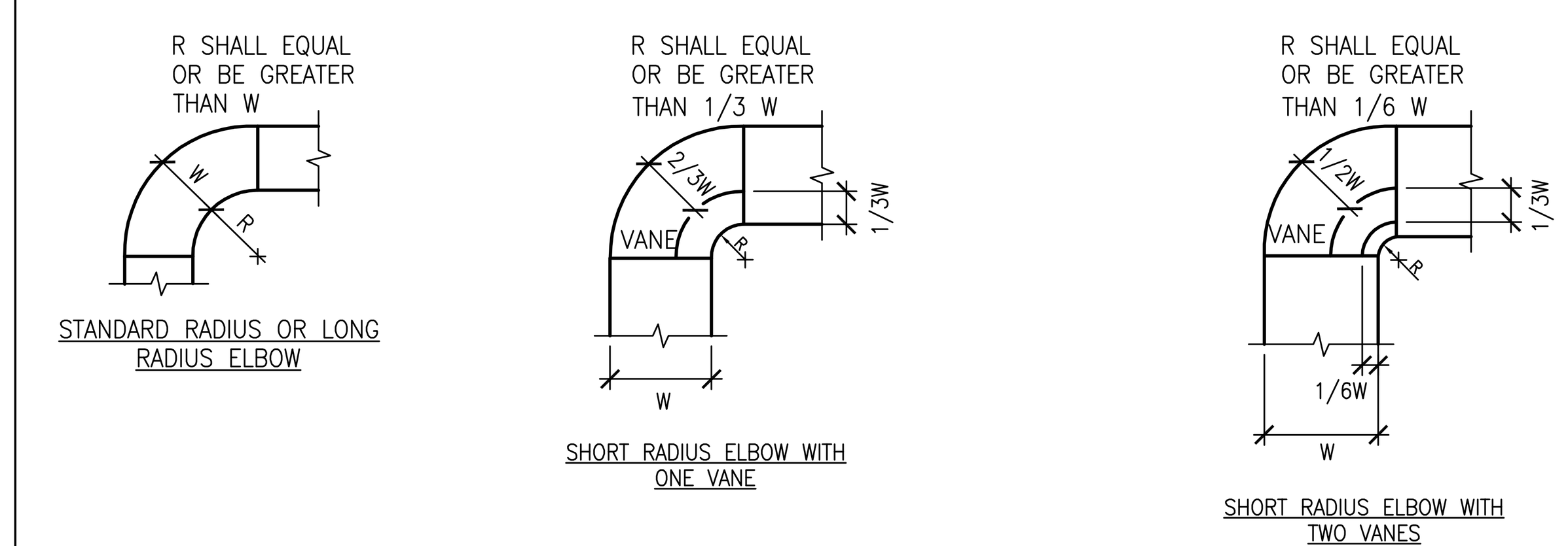
NOTE:

1. DELETE INSULATION STAND–OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI–BLADE DAMPERS & ROUND DAMPERS.

D3 VOLUME DAMPER DETAIL
SCALE: NTS



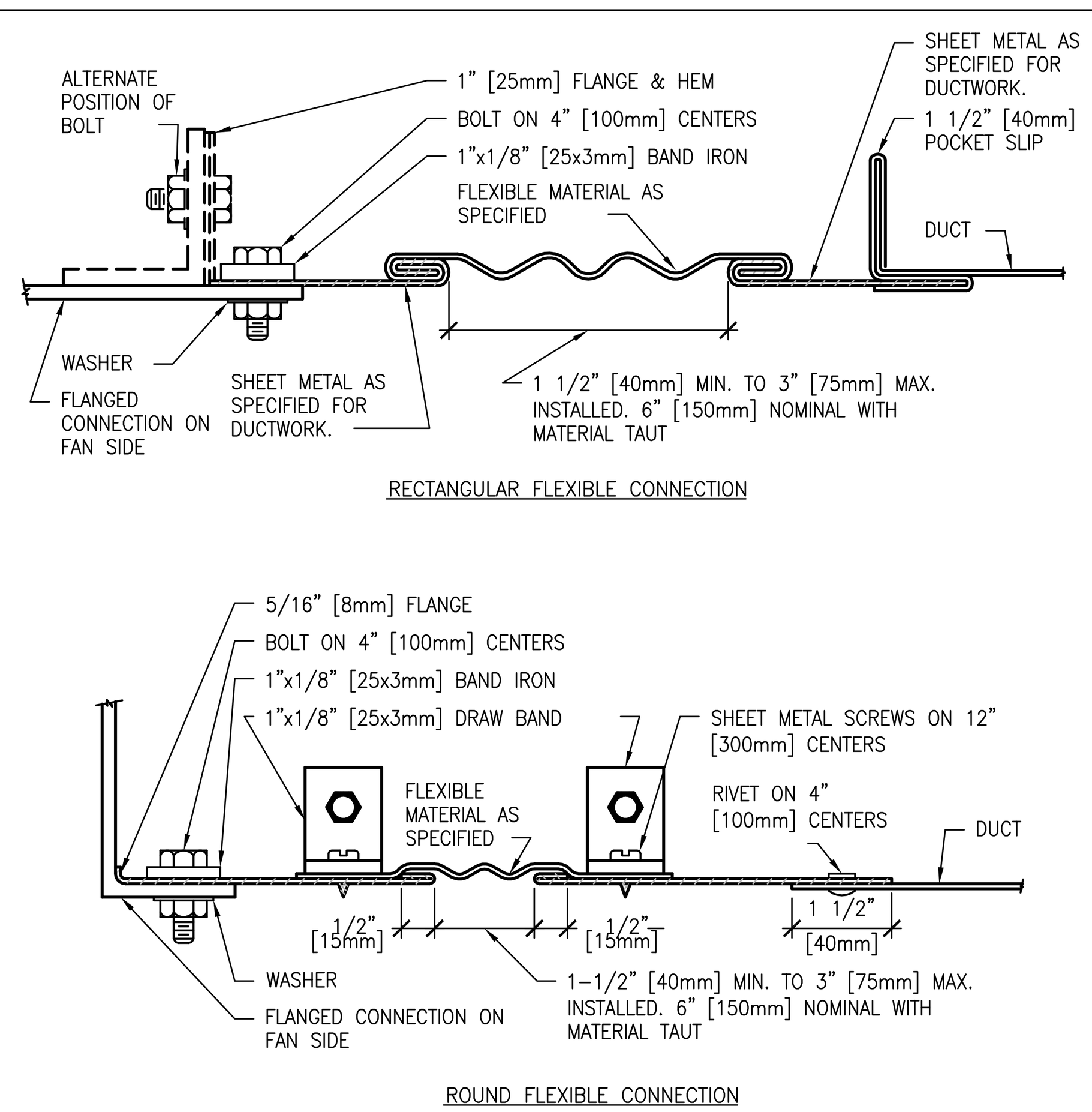
D5 SUPPLY DUCT TAKEOFF - AIR TERMINAL UNIT
SCALE: NTS



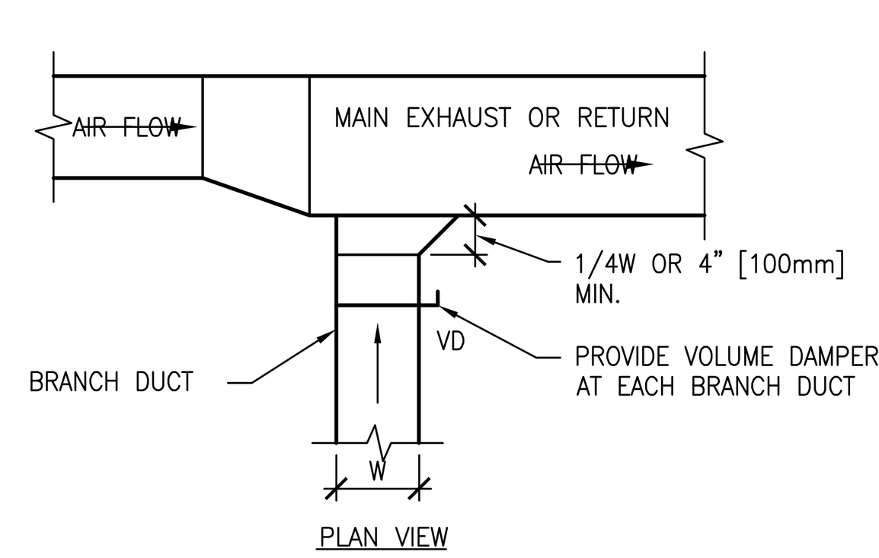
NOTE:

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

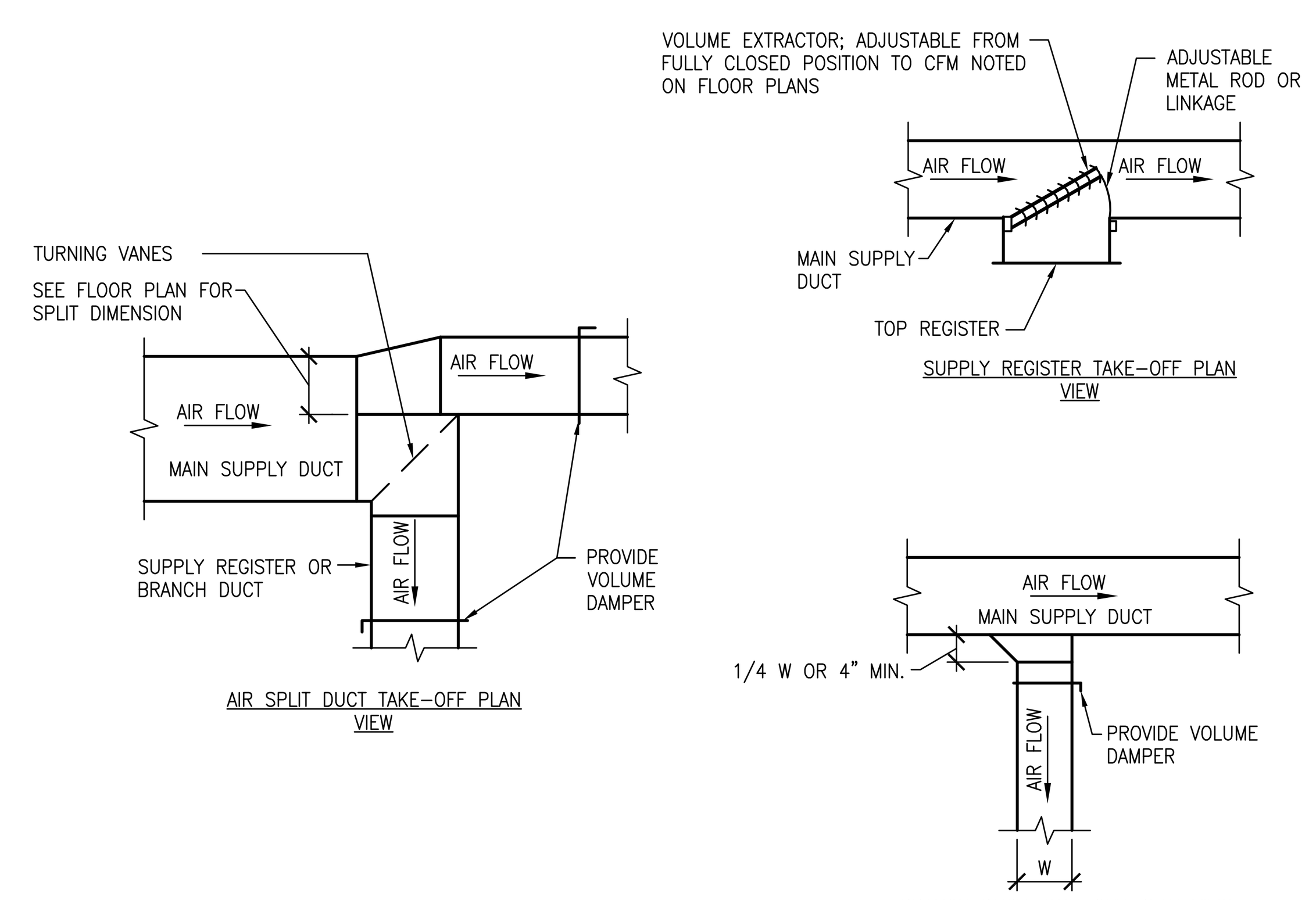
D8 DUCTWORK RADIUS ELBOWS
SCALE: NTS



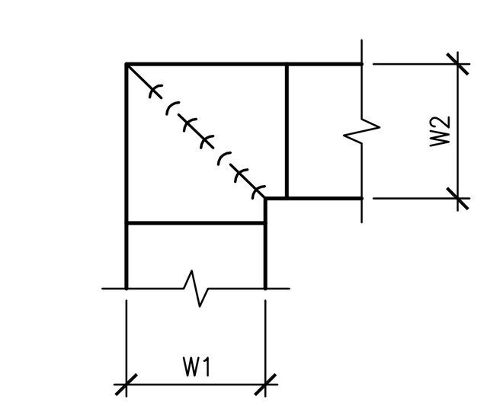
F1 FLEXIBLE DUCT CONNECTORS
SCALE: NTS



F3 EXHAUST OR RETURN BRANCH DUCTWORK
SCALE: NTS



F5 SUPPLY DUCTWORK TAKE-OFFS
SCALE: NTS



NOTE:

1. ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE THICKNESS VANES SHALL HAVE A 2" [50mm] RADIUS, 1 1/2" [40mm] MAXIMUM SPACE BETWEEN VANES AND A 3/4" [20mm] TRAILING EDGE.
4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20" [500mm] VANES SHALL BE DOUBLE VANE TYPE.

F8 DUCTWORK SQUARE VANE ELBOWS
SCALE: NTS

BUILDING IS FULLY SPRINKLERED
Scale: AS NOTED

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

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KEY PLAN:

ARCHITECT/ENGINEERS:

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Vancouver ■ Victoria ■ Washington DC

Drawing Title: MECHANICAL DETAILS 4

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

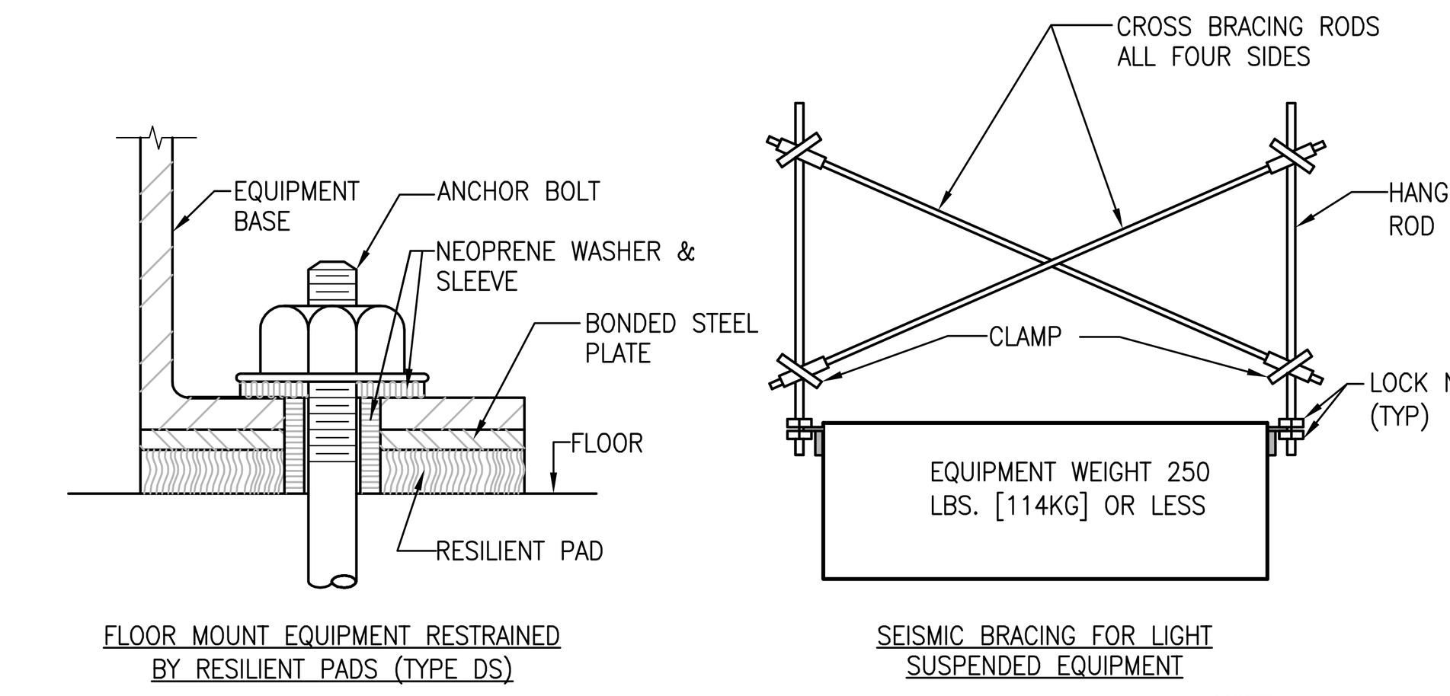
Date	Checked	Drawn
AUGUST 15, 2013	JB	JRC

Project Number: 630PR2600
Building Number: 1
Drawing Number: 1-MH504

Office of Construction & Facilities Management
VA U.S. Department of Veterans Affairs

three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot

\\CD-HCDS02\Healthcare02\003630.13_VA-MAN-9\E_WORKING\E.01 Design\E.01.3 CAD\HVAC\630.2600.1.MH505.dwg 8-15-13 11:43:45 AM jclement

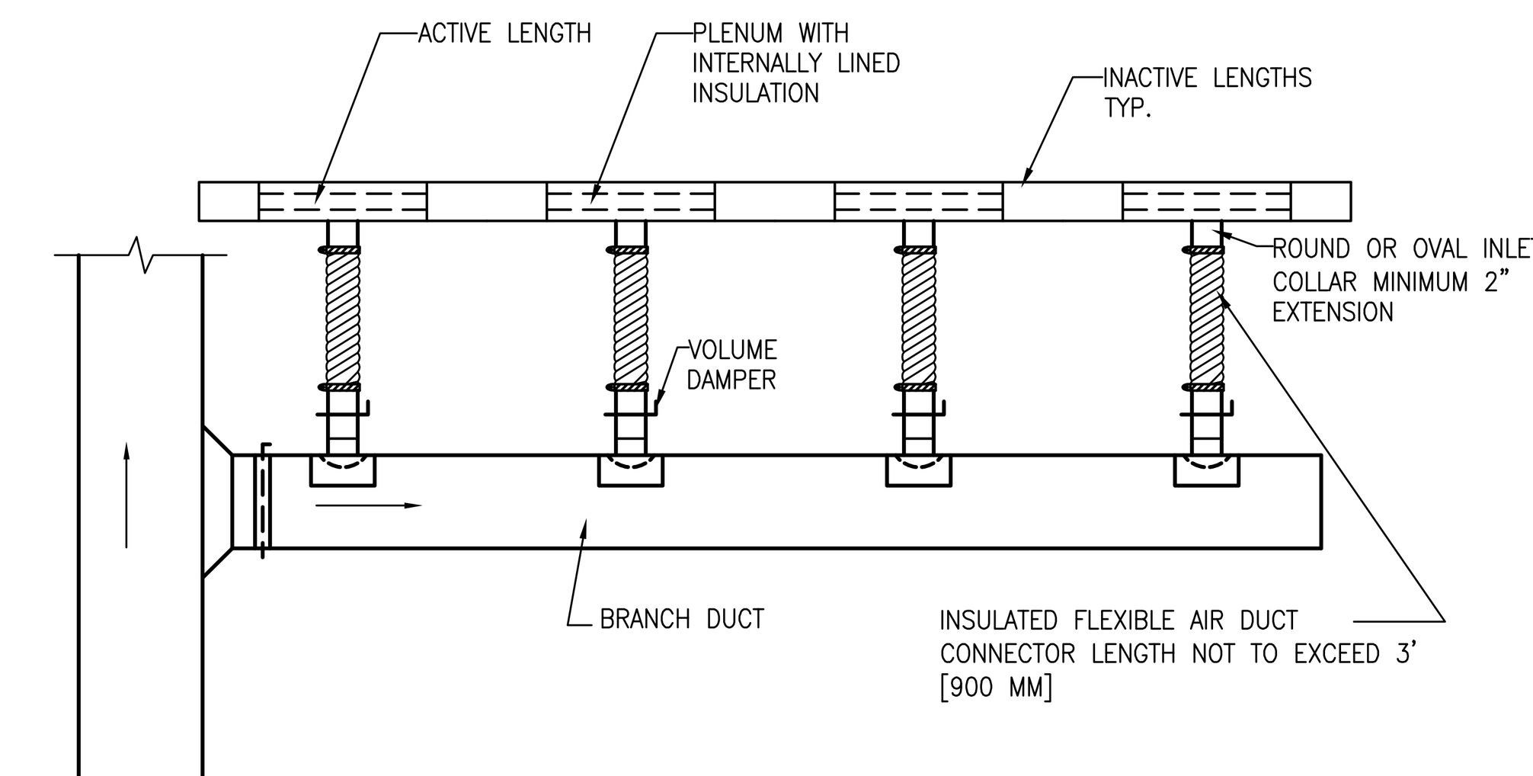


FLOOR MOUNT EQUIPMENT RESTRAINED BY RESILIENT PADS (TYPE DS)

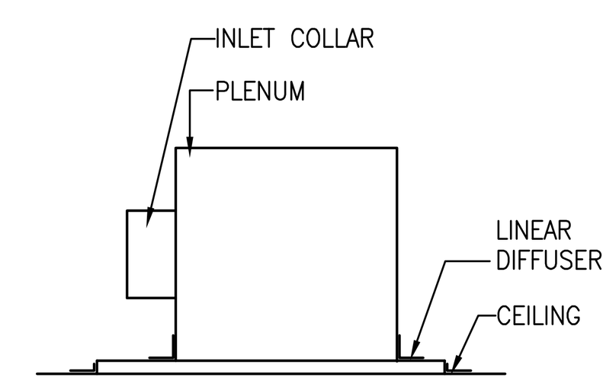
SEISMIC BRACING FOR LIGHT SUSPENDED EQUIPMENT

NOTE:
NOT REQUIRED FOR AIR TERMINAL UNITS.

B5 SEISMIC BRACING FOR EQUIPMENT
SCALE: NTS
AC-50

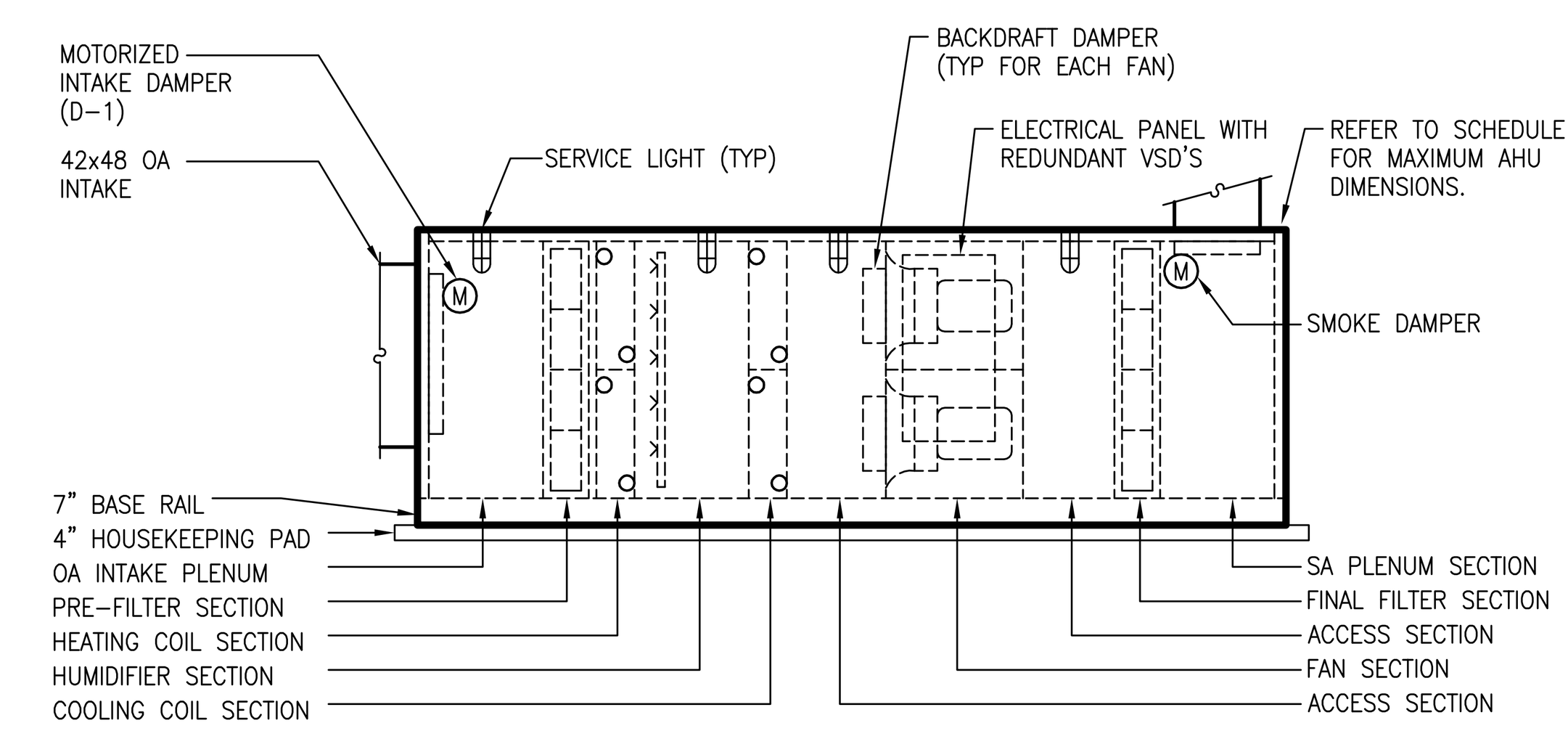


NOTES:
1. COORDINATE SLOT DIFFUSER FRAME/BORDER TYPE AND END BORDER CONFIGURATION WITH CEILING TYPE.

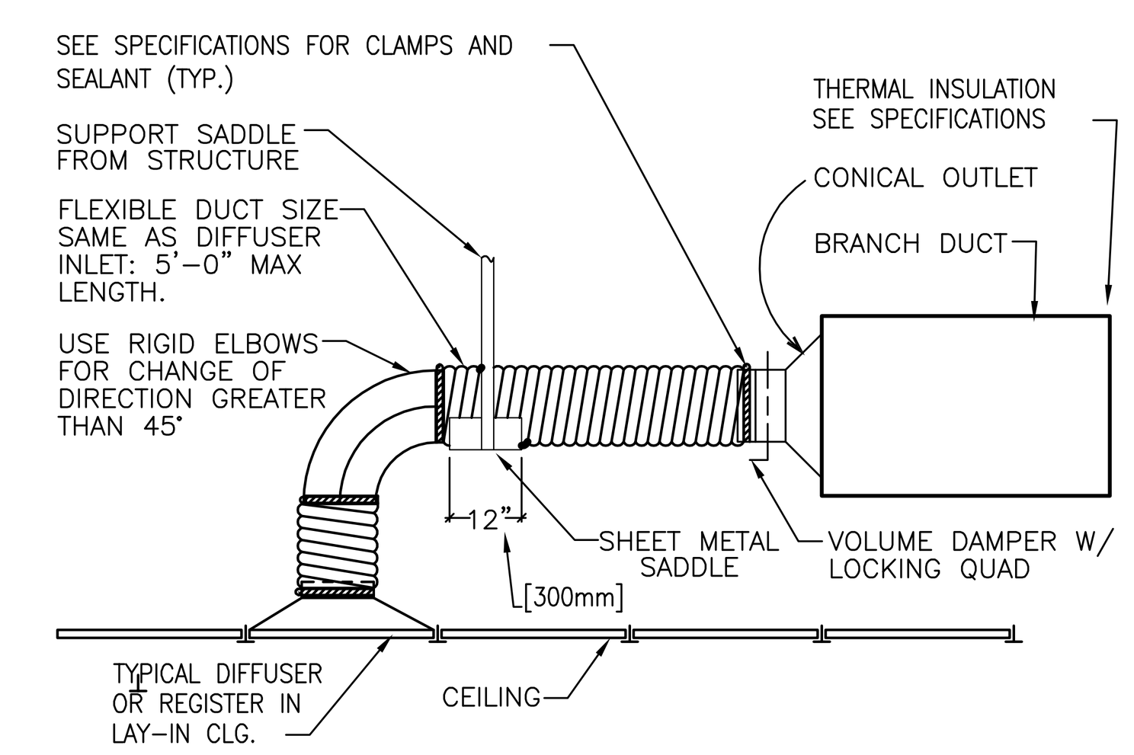


B8 LINEAR SLOT DIFFUSER
SCALE: NTS

NOTE:
WIRE ALL SERVICE LIGHTS TO COMMON UNIT MOUNTED SWITCH

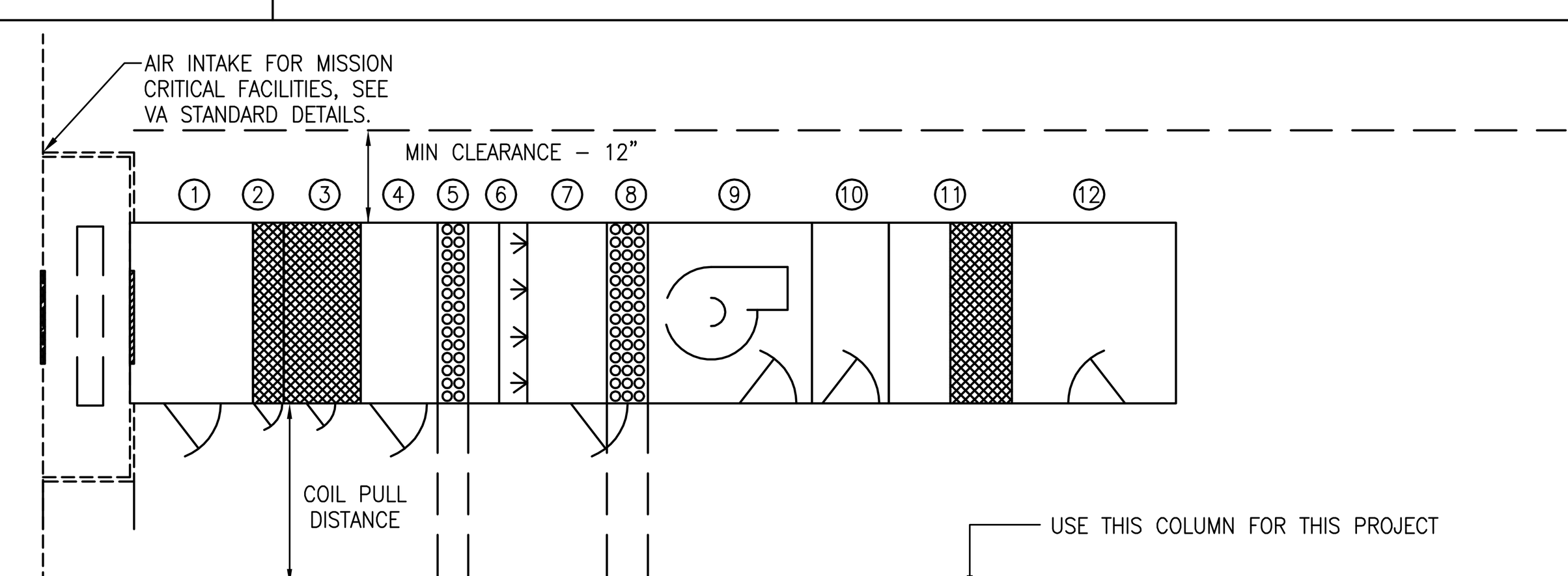


D5 AHU COMPONENT DIAGRAM
SCALE: NTS



NOTE:
THE USE OF FLEXIBLE AIR DUCT CONNECTORS ARE NOT PERMITTED FOR THE DEDICATED AHU SERVING THE SURGICAL SUITE.

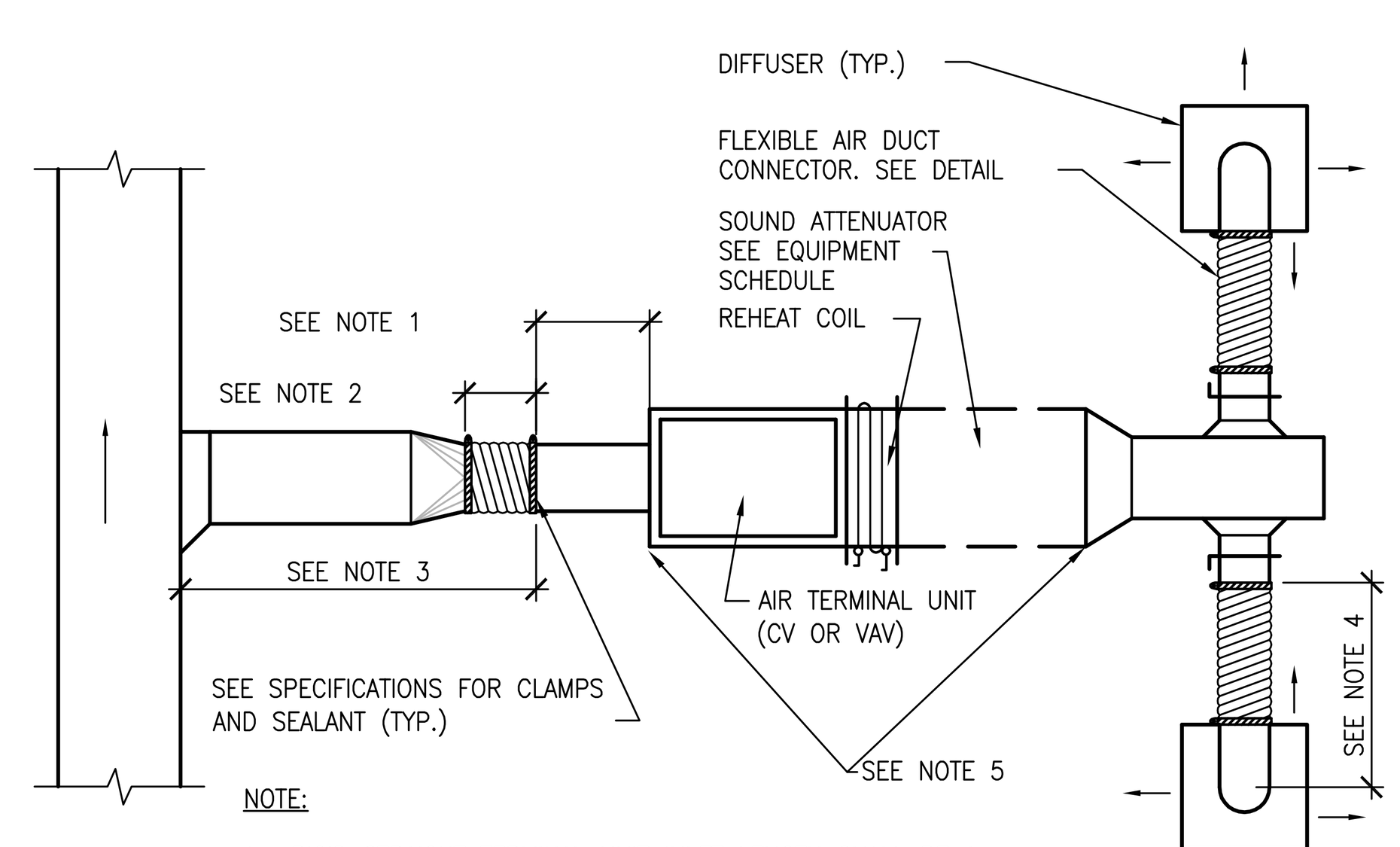
D8 FLEXIBLE AIR DUCT CONNECTOR
SCALE: NTS



	AIR HANDLING UNIT	ITEM	MINIMUM OUTSIDE AIR TWO BEDS OF FILTERS VAV	MINIMUM OUTSIDE AIR THREE BEDS OF FILTERS CV	100% OUTSIDE AIR TWO BEDS OF FILTERS CV	100% OUTSIDE AIR THREE BEDS OF FILTERS CV
*	MIXING BOX	1	YES	YES	NO	NO
	PRE-FILTERS (SIDE ACCESS)	2	YES	YES	YES	YES
	AFTER FILTER (SIDE ACCESS)	3	YES	YES	YES	YES
	ACCESS SECTION, MED-LARGE	4	YES	YES	YES	YES
*	PRE-HEAT COIL	5	YES	YES	YES	YES
*	INSPECTION SECTION,SMALL	6	YES	YES	YES	YES
	HUMIDIFIER	7	YES	YES	YES	YES
	COOLING COIL	8	YES	YES	YES	YES
	FAN SECTION	9	YES	YES	YES	YES
*	ACCESS SECTION,MED-LARGE	10	NO	NO	YES	YES
*	FINAL FILTER	11	NO	NO	NO	YES
*	DISCHARGE PLENUM (VERTICAL)	12	YES	YES	YES	YES
* AS REQUIRED						

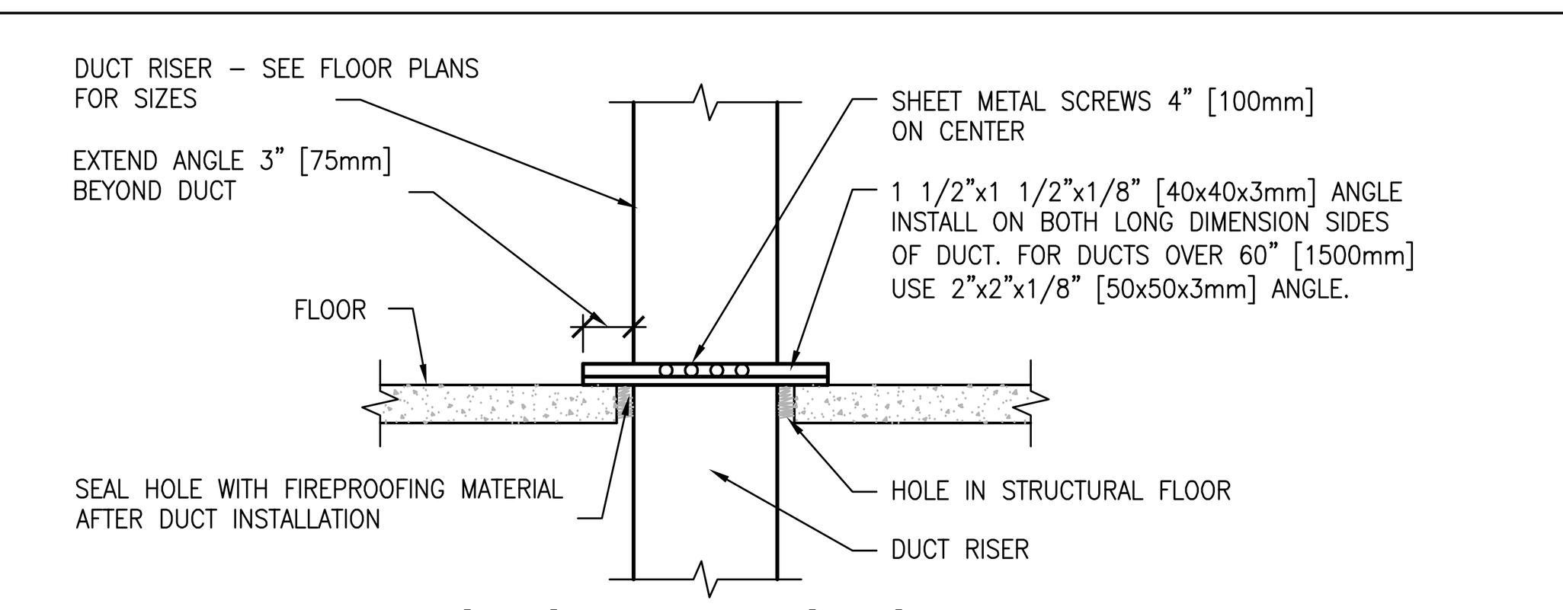
NOTE:
1. ACCESS DOORS SHALL BE GASKETED AND HINGED TO OPEN AGAINST FAN OPERATING PRESSURE TO PREVENT AIR LEAKAGE.
2. MINIMUM ACCESS DOOR WIDTH SHALL BE 24" [600mm].
3. ACCESS DOOR HEIGHT SHALL BE DETERMINED BY UNIT CASING BUT NOT TO EXCEED 6'-0" [1800mm].
4. ACCESS DOORS ON FAN SUCTION SHALL OPEN OUTWARD.
5. ACCESS DOORS ON FAN DISCHARGE SIZE SHALL OPEN INWARD.

F2 ACCESS DOOR SWING DETAIL FOR AIR HANDLING UNITS
SCALE: NTS

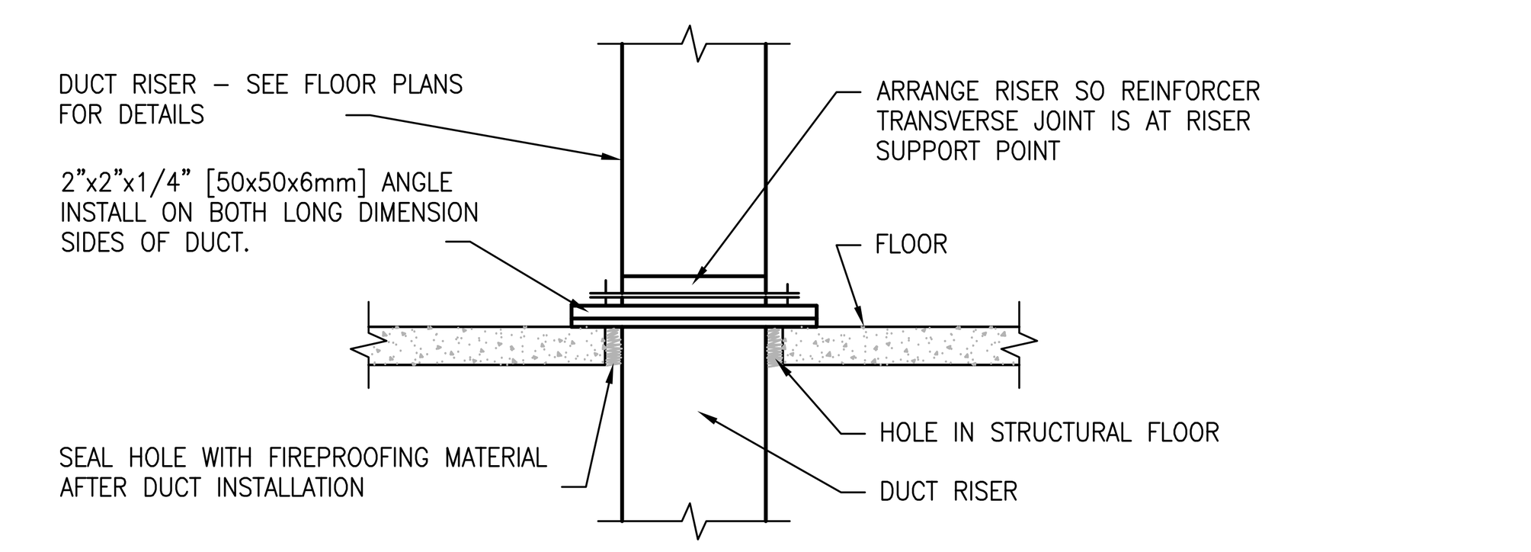


NOTE:
1. RIGID STRAIGHT TERMINAL UNIT INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET
2. A FLEXIBLE AIR DUCT CONNECTOR IS NOT MANDATORY FOR INLET TO THIS BOX, BUT ALLOWED TO ACCOMMODATE MINOR OFFSETS. MAXIMUM LENGTH 3'-0" [900mm].
3. A BRANCH DUCT SERVING AN INDIVIDUAL BOX MAY BE THE SAME SIZE AS THE BOX INLET, PROVIDED THE EQUIVALENT LENGTH OF THE BRANCH DUCT, AS SHOWN, DOES NOT EXCEED 10 FEET (3 METERS). FOR LONGER LENGTHS, INCREASE THE DUCT SIZE AND PROVIDE A DUCT TRANSITION TO MAINTAIN THE DUCT STATIC PRESSURE DROP AT OR BELOW 0.2"/100' [1.64Pa/m].
4. FLEXIBLE AIR DUCT CONNECTORS, WHEN USED FROM TERMINAL UNIT SUPPLY AIR DUCT TO DIFFUSER, SHALL NOT EXCEED 5'-0" [1500mm]. USE RIGID ELBOWS FOR CHANGE OF DIRECTION GREATER THAN 45°.
5. COMPONENT ARRANGEMENT MAY VARY BY MANUFACTURER. PROVIDE INSULATION W/VAPOR BARRIER FOR CONNECTING DUCT SECTIONS.
6. USE OF THE FLEXIBLE AIR DUCT CONNECTORS ARE NOT PERMITTED FOR THE DEDICATED AHU SERVING THE SURGICAL SUITE.

F5 DUCT CONNECTIONS - AIR TERMINAL UNITS
SCALE: NTS



0.5 INCH WG [125Pa] TO 2 INCHES WG [500Pa] DUCT RISER SUPPORT



2 INCHES WG [500Pa] TO 4 INCHES WG [1000Pa] DUCT RISER SUPPORT

NOTE:
ALL DUCT WORK RISERS WHICH ARE RUN EXPOSED, SUCH AS THRU ATTIC FLOORS AND FAN ROOM FLOORS SHALL BE PROVIDED WITH A 3" [75mm] HIGH CONCRETE CURB AROUND OPENING FOR DUCT.

F8 DUCT RISER SUPPORTS
SCALE: NTS

BUILDING IS FULLY SPRINKLERED
Scale: AS NOTED

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

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Drawing Title: MECHANICAL DETAILS 5
Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM
MANHATTAN VAMC - BUILDING 1
9TH FLOOR RENOVATIONS
Location: 423 EAST 23RD STREET
NEW YORK, NY 10010
Date: AUGUST 15, 2013
Checked: JB
Drawn: JRC

Project Number: 630PR2600
Building Number: 1
Drawing Number: 1-MH505

Office of Construction & Facilities Management
VA U.S. Department of Veterans Affairs

VA FORM 08-6231

A1 AIR HANDLING UNIT SCHEDULE

UNIT NO.	AREA SERVED	SUPPLY FAN DATA: TOTAL CFM	MIN OA CFM	TOTAL SP (IN WG)	MIN EXTERNAL SP (IN WG)	FAN RPM ⟨5⟩	WHEEL DIA. ⟨5⟩	WHEEL TYPE ⟨5⟩	CLASS ⟨5⟩	MOTOR * BHP ⟨5⟩	MOTOR * HP ⟨5⟩	MOTOR * VFD ⟨4⟩	SOUND POWER LEVEL AT FAN OUTLET OCTAVE BAND NO. 1	2	3	4	5	6	7	8
AC-50	9TH FLOOR (8TH/10TH FLOOR FUTURE)	15,000	15,000	9.0	5.5	3756	16	AIRFOIL	2	4(7.4)	4(10)	YES	88	85	89	83	83	80	79	75

UNIT NO.	COOLING COIL: MAX FACE VEL (FPM)	MAX FINS (PER IN)	MIN ROWS	EAT DB/WB (°F)	LAT DB/WB (°F)	⟨7⟩ COOLING (MBH)	MAX AIR ΔP (IN WG)	EWT (°F)	LWT (°F)	WATER FLOW (GPM)	MAX WTR ΔP (FT)	HEATING COIL ⟨3⟩: MAX FACE VEL (FPM)	MAX FINS (PER IN)	MIN ROWS	EAT DB (°F)	LAT DB (°F)	TOTAL HEAT (MBH)	MAX AIR ΔP (IN WG)	EWT (°F)	LWT (°F)	WATER FLOW (GPM)	MAX WTR ΔP (FT)
AC-50	475	10	6	90/74	55/54	961/565	0.8	45	55	192	15	475	8	2	10	81	1155	0.2	180	150	93	12

UNIT NO.	PRE-FILTER (MERV)	ΔP CLEAN	ΔP DIRTY	AFTER FILTER (MERV)	ΔP CLEAN	ΔP DIRTY	FINAL FILTER (MERV)	ΔP CLEAN	ΔP DIRTY	ELECTRICAL ⟨8⟩ V/PH/HZ	MCA	FLA	MOPD	EMERGENCY POWER	MAX UNIT WEIGHT (LBS)	REMARKS
AC-50	8(2")	0.3	0.6	11(6")	0.7	1.0	14(12")	0.4	0.8	208/3/60	115	108	125	YES	11,000	⟨1⟩⟨2⟩⟨6⟩

NOTES:⟨ ⟩

1. AHU DIMENSIONS CANNOT EXCEED: 228" LONG x 78" HIGH x 92" WIDE.
2. PROVIDE INTAKE AND DISCHARGE COMPONENTS AS INDICATED ON DRAWINGS.
3. HOT WATER IS A 30% PROPYLENE GLYCOL SOLUTION (GWS/GWR).
4. TWO REDUNDANT VFD'S TO CONTROL ALL SUPPLY FANS.
5. VALUES LISTED ARE FOR EACH FAN OF FOUR FAN ARRAY.
6. PROVIDE SERVICE LIGHT (75W) IN EACH ACCESSIBLE SECTION.
7. TOTAL/SENSIBLE COOLING CAPACITY.
8. POWER PANEL SHALL BE PROVIDED AT 22kAIC.

B1 VIBRATION ISOLATION SCHEDULE

EQUIPMENT SERVED	ISOLATOR TYPE	MIN STATIC DEFLECTION (IN)	REMARKS
SUSPENDED PUMPS/FANS	H	1.0"	
AIR HANDLING UNITS	N	0.35	
FAN COIL UNITS	H	0.35	

B2 SHELL AND TUBE HEAT EXCHANGER SCHEDULE

UNIT NO.	SERVICE	CAPACITY (MBH)	TUBE SIDE: GPM	EWT (°F)	LWT (°F)	FLUID	NO. OF PASSES	MAX P.D. (FT.)	SHELL SIDE: FLUID	NO. OF PASSES	MAX P.D. (FT.)	ENT. PRESS. (PSIG)	CAPACITY (LBS/HR)	DESIGN WORKING PRESS. (PSIG)	DIMENSIONS	REMARKS
SWHX-50A	AC-50	1155	93	150	180	30% PROPYLENE GLYCOL	2	0.5	STEAM	1	0.1	55	1222	15	8"ø x 42" LONG	⟨1⟩⟨2⟩⟨3⟩
SWHX-50B	AC-50	1155	93	150	180	30% PROPYLENE GLYCOL	2	0.5	STEAM	1	0.1	55	1222	15	8"ø x 42" LONG	⟨1⟩⟨2⟩⟨3⟩

NOTES:⟨ ⟩

1. FOULING FACTOR .00075.
2. .035 TUBE THICKNESS.
3. HEAT EXCHANGERS ARE REDUNDANT (DUTY/STANDBY).

C2 EFFICIENCY NOTES

* ALL MOTOR EFFICIENCIES MUST MEET OR EXCEED VALUES INDICATED IN VETERAN'S ADMINISTRATION TECHNICAL INFORMATION LIBRARY DETAIL 15050-22

B4 HUMIDIFIER SCHEDULE

UNIT NO.	TYPE	PSIG	LBS/HR	REMARKS
H-50	DISPERSION GRID	0	115	⟨1⟩

NOTES:⟨ ⟩

1. HUMIDIFIER GRID SHALL MAINTAIN VAPOR TRAIL TO 24" MAXIMUM.

B7 EXPANSION TANK SCHEDULE

UNIT NO.	SYSTEM	TYPE	ACCEPTANCE VOLUME (GAL)	MOUNTING	REMARKS
ET-50	AC-50 GLYCOL SYSTEM	BLADDER	5	FLOOR	

C7 SOUND ATTENUATOR SCHEDULE

UNIT NO.	SYSTEM	CFM	MAX FACE VEL (FPM)	MAX PRESS. DROP (IN)	MINIMUM ATTENUATION OCTAVE BAND NO. 1	2	3	4	5	6	7	8	LENGTH X WIDTH X HEIGHT	REMARKS
SAS-50	AC-50	12,000	1500	0.10	3	3	7	14	25	19	14	8	36X60X48	SIMILAR TO VIBRO-ACOUSTICS RD-HV-F9
SAE-50	EF-50	15,000	1500	0.10	4	4	9	17	27	19	13	8	36X48X30	SIMILAR TO VIBRO-ACOUSTICS RD-HV-F9

NOTES:⟨ ⟩

1. TRANSITION AS REQUIRED TO DUCTWORK.

D2 AIR SEPARATOR SCHEDULE

UNIT NO.	SYSTEM	SIZE	GPM	REMARKS
AS-50	AC-50	4"	175	

D7 PUMP SCHEDULE

UNIT NO.	SYSTEM	TYPE	CAPACITY (GPM)	HEAD (FT)	EFFICIENCY (%)	PUMP SIZE: SUCTION (IN)	DISCHARGE (IN)	MOTOR * BHP	HP	VFD	V/PH/HZ	EMERGENCY POWER	REMARKS
HWP-50A	HEATING GLYCOL	IN-LINE	93	60	57	2	2	2.5	3.0	YES	208/3/60	YES	⟨1⟩
HWP-50B	HEATING GLYCOL	IN-LINE	93	60	57	2	2	2.5	3.0	YES	208/3/60	YES	⟨1⟩

NOTES:⟨ ⟩

1. PUMPS ARE REDUNDANT (DUTY/STANDBY)

E6 FAN SCHEDULE

UNIT NO.	AREA SERVED	CFM	EXTERNAL SP (IN WG)	TYPE	MIN WHEEL DIA (IN)	FAN RPM	MOTOR * BHP	HP	VFD	V/PH/HZ	EMERGENCY POWER	SOUND POWER LEVEL AT FAN INLET OCTAVE BAND NO. 1	2	3	4	5	6	7	8	REMARKS
EF-50	9th (8th&10th FUTURE)	15,000	3.0	MIXED FLOW	24	1816	13.2	15	YES	208/3/60	YES	80	84	92	89	89	85	81	74	LOCATE MOTOR IN BOTTOM POSITION

NOTE: UNDER THIS PROJECT EF-50 SHALL BE BALANCED TO APPROXIMATELY 9000 CFM (FAN RPM~1200)

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

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Drawing Title: MECHANICAL SCHEDULES 1

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date: AUGUST 15, 2013 | Checked: JB | Drawn: JRC

BUILDING IS FULLY SPRINKLERED

Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MH601

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

A1 VARIABLE AIR VOLUME TERMINAL UNIT SCHEDULE

UNIT NO.	T.U. SIZE (DIA)	AIR QUANTITY MAX. CFM	AIR QUANTITY MIN. CFM	REHEAT COIL AIR TEMP IN °F	REHEAT COIL AIR TEMP OUT °F	REHEAT COIL TOTAL HEAT MBH	REHEAT COIL GPM
TU-12-N1	6	75	75	55	80	2.1	0.2
TU-12-N2	6	325	325	55	85	10.7	1.1
TU-12-N3	6	300	300	55	80	8.3	0.8
TU-11-S1	6	75	75	55	80	2.1	0.2
TU-11-S2	6	300	300	55	90	11.6	1.2
TU-11-S3	6	150	150	55	80	4.1	0.4
TU-11-S4	6	150	150	55	80	4.1	0.4
TU-11-S5	6	75	75	55	80	2.1	0.2
TU-11-S6	6	100	100	–	–	–	–
TU-11-S7	6	100	100	–	–	–	–
TU-13-W1	6	75	75	55	80	2.1	0.2
TU-13-W2	6	300	300	55	95	12.9	1.3
TU-13-W3	6	175	175	55	80	4.8	0.5
TU-13-W4	6	75	75	55	80	2.1	0.2
TU-13-W5	6	150	150	55	80	4.1	0.4
TU-50-N1	6	300	300	55	90	8.2	0.8
TU-50-N2	6	200	200	55	80	5.5	0.6
TU-50-N3	6	75	75	55	80	2.1	0.2
TU-50-N4	6	100	100	–	–	–	–
TU-50-N5	6	350	350	55	95	15.4	1.5
TU-50-N6	6	150	150	–	–	–	–
TU-50-N7A	6	75	75	55	80	2.1	0.2
TU-50-N7B	6	75	75	55	80	2.1	0.2
TU-50-N8	6	100	100	55	80	2.8	0.3
TU-50-N9	6	125	125	55	80	3.4	0.3
TU-50-N10	6	250	250	55	90	9.5	1.0
TU-50-N11	6	100	100	–	–	–	–
TU-50-N12	6	150	150	–	–	–	–
TU-50-N13	6	100	100	–	–	–	–
TU-50-S1	8	550	550	55	85	18.2	1.8
TU-50-S2	6	75	75	55	80	2.1	0.2
TU-50-S3	6	50	50	–	–	–	–
TU-50-S4	6	200	200	–	–	–	–
TU-50-S5	6	75	75	55	80	2.1	0.2
TU-50-S6	6	150	150	55	80	4.1	0.4
TU-50-S7	6	100	100	55	80	2.8	0.3
TU-50-S8	6	100	100	–	–	–	–
TU-50-S9	6	100	100	55	80	2.8	0.3
TU-50-S10	6	150	150	55	80	4.1	0.4
TU-50-S11	6	200	200	55	95	8.7	0.9
TU-50-W1A	6	50	50	–	–	–	–
TU-50-W1B	6	225	225	55	95	9.7	1.0
TU-50-W2	8	600	600	55	90	22.7	2.2
TU-50-W3	8	550	550	55	90	21.4	2.1
TU-50-W4	6	100	100	55	80	2.8	0.3
TU-50-W5	6	50	50	–	–	–	–
TU-50-W6	6	125	125	55	80	3.4	0.3
TU-50-W7	6	75	75	55	80	2.1	0.2
TU-50-W8	6	100	100	–	–	–	–
TU-50-W9	6	75	75	55	80	2.1	0.2
TU-50-W10	6	250	250	55	80	6.9	0.7

NOTES:

1. VARIABLE AIR VOLUME TERMINAL UNITS
   a. MAXIMUM AIR PRESSURE DROP OF 0.40 INCHES WG. INCLUDES RESISTANCE OF TERMINAL UNITS AND REHEAT COIL AT MAXIMUM AIR FLOW.
   b. MAXIMUM NC OF 27.
   c. REHEAT COILS BASED ON 140 DEGREE F EWT AND 120 DEGREE F LWT WITH A MAXIMUM WATER PRESSURE DROP OF 2.0 FEET.
   d. MAXIMUM FACE VELOCITY OF REHEAT COIL SHALL NOT EXCEED 900 FPM.
   e. SOUND DATA BASED ON 2.0" WG ENTERING STATIC PRESSURE
   f. SELECT COIL BASED ON INDICATED GPM. HOWEVER, FLOW RATE OF 0.5 GPM SHALL BE MINIMUM BALANCED FLOW.

VAV TERMINAL UNIT MAX SOUND POWER LEVELS (dB)

OCTAVE BAND (DISCHARGE) 1	2	3	4	5	6	7	8	NC
–	70	68	61	56	53	51	–	27

A2 AIR DEVICE SCHEDULE (RETURN)

MARK	TYPE	AIR FLOW MIN CFM	MIN [L/s]	MAX CFM	MAX [L/s]	MAX APD IN WG	MAX APD [Pa]	MOUNTING	PANEL/FRAME SIZE IN X IN	PANEL/FRAME SIZE [mm X mm]	NECK SIZE IN X IN	NECK SIZE [mm X mm]	NC	DAMPER	FINISH	REMARKS
RG-20	PLAQUE	60	[28]	100	[47]	0.088	[22]	CEILING	12 X 12	[300 X 300]	6 ø	[152 ø]	13	NONE	WHITE	
RG-21	PLAQUE	60	[28]	100	[47]	0.088	[22]	CEILING	24 X 24	[600 X 600]	6 ø	[152 ø]	13	NONE	WHITE	
RG-22	PLAQUE	110	[52]	170	[80]	0.088	[22]	CEILING	24 X 24	[600 X 600]	8 ø	[203 ø]	13	NONE	WHITE	
RG-23	PLAQUE	170	[80]	250	[120]	0.088	[22]	CEILING	24 X 24	[600 X 600]	10 ø	[254 ø]	14	NONE	WHITE	
RG-24	PLAQUE	240	[110]	400	[190]	0.088	[22]	CEILING	24 X 24	[600 X 600]	12 ø	[305 ø]	12	NONE	WHITE	
RG-25	PLAQUE	320	[150]	500	[240]	0.087	[22]	CEILING	24 X 24	[600 X 600]	14 ø	[356 ø]	14	NONE	WHITE	
RG-26	PLAQUE	420	[200]	700	[330]	0.087	[22]	CEILING	24 X 24	[600 X 600]	16 ø	[406 ø]	16	NONE	WHITE	
RR-56	RETURN REGISTER	90	[42]	160	[76]	0.078	[20]	WALL	10 X 8	[254 X 203]	8 X 6	[203 X 152]	12	OBD	WHITE	
RR-57	RETURN REGISTER	140	66]	240	[110]	0.078	[20]	WALL	14 X 8	[356 X 203]	12 X 6	[305 X 152]	14	OBD	WHITE	
RR-58	RETURN REGISTER	210	[99]	350	[170]	0.078	[20]	WALL	20 X 8	[508 X 203]	18 X 6	[457 X 152]	16	OBD	WHITE	
RR-59	RETURN REGISTER	190	[90]	320	[150]	0.078	[20]	WALL	14 X 10	[356 X 254]	12 X 8	[305 X 203]	15	OBD	WHITE	
RR-510	RETURN REGISTER	220	[100]	360	[170]	0.078	[20]	WALL	14 X 12	[356 X 305]	12 X 10	[305 X 254]	16	OBD	WHITE	
RR-511	RETURN REGISTER	330	[160]	560	[260]	0.078	[20]	WALL	20 X 12	[508 X 305]	18 X 10	[457 X 254]	17	OBD	WHITE	
RR-512	RETURN REGISTER	360	[170]	850	[400]	0.082	[21]	WALL	30 X 12	[660 X 356]	28 X 10	[600 X 305]	20	OBD	WHITE	
RR-513	RETURN REGISTER	460	[220]	1260	[590]	0.095	[24]	WALL	38 X 12	[813 X 356]	36 X 10	[762 X 305]	24	OBD	WHITE	

NOTES:

PROVIDE SQUARE TO ROUND ADAPTER

B2 AIR DEVICE SCHEDULE (EXHAUST)

MARK	TYPE	AIR FLOW MIN CFM	MIN [L/s]	MAX CFM	MAX [L/s]	MAX APD IN WG	MAX APD [Pa]	MOUNTING	PANEL/FRAME SIZE IN X IN	PANEL/FRAME SIZE [mm X mm]	NECK SIZE IN X IN	NECK SIZE [mm X mm]	NC	DAMPER	FINISH	REMARKS
EG-20	PLAQUE	60	[28]	100	[47]	0.088	[22]	CEILING	12 X 12	[300 X 300]	6 ø	[152 ø]	13	NONE	WHITE	
EG-21	PLAQUE	60	[28]	100	[47]	0.088	[22]	CEILING	24 X 24	[600 X 600]	6 ø	[152 ø]	13	NONE	WHITE	
EG-22	PLAQUE	110	[52]	170	[80]	0.088	[22]	CEILING	24 X 24	[600 X 600]	8 ø	[203 ø]	13	NONE	WHITE	
EG-23	PLAQUE	170	[80]	250	[120]	0.088	[22]	CEILING	24 X 24	[600 X 600]	10 ø	[254 ø]	14	NONE	WHITE	
EG-24	PLAQUE	240	[110]	400	[190]	0.088	[22]	CEILING	24 X 24	[600 X 600]	12 ø	[305 ø]	12	NONE	WHITE	
EG-25	PLAQUE	320	[150]	500	[240]	0.087	[22]	CEILING	24 X 24	[600 X 600]	14 ø	[356 ø]	14	NONE	WHITE	
EG-26	PLAQUE	420	[200]	700	[330]	0.087	[22]	CEILING	24 X 24	[600 X 600]	16 ø	[406 ø]	16	NONE	WHITE	
ER-56	EXHAUST REGISTER	90	[42]	160	[76]	0.078	[20]	WALL	10 X 8	[254 X 203]	8 X 6	[203 X 152]	12	OBD	WHITE	
ER-57	EXHAUST REGISTER	140	66]	240	[110]	0.078	[20]	WALL	14 X 8	[356 X 203]	12 X 6	[305 X 152]	14	OBD	WHITE	
ER-58	EXHAUST REGISTER	210	[99]	350	[170]	0.078	[20]	WALL	20 X 8	[508 X 203]	18 X 6	[457 X 152]	16	OBD	WHITE	
ER-59	EXHAUST REGISTER	190	[90]	320	[150]	0.078	[20]	WALL	14 X 10	[356 X 254]	12 X 8	[305 X 203]	15	OBD	WHITE	
ER-510	EXHAUST REGISTER	220	[100]	360	[170]	0.078	[20]	WALL	14 X 12	[356 X 305]	12 X 10	[305 X 254]	16	OBD	WHITE	
ER-511	EXHAUST REGISTER	330	[160]	560	[260]	0.078	[20]	WALL	20 X 12	[508 X 305]	18 X 10	[457 X 254]	17	OBD	WHITE	
ER-512	EXHAUST REGISTER	360	[170]	850	[400]	0.082	[21]	WALL	30 X 12	[660 X 356]	28 X 10	[600 X 305]	20	OBD	WHITE	
ER-513	EXHAUST REGISTER	460	[220]	1260	[590]	0.095	[24]	WALL	38 X 12	[813 X 356]	36 X 10	[762 X 305]	24	OBD	WHITE	

NOTES:

PROVIDE SQUARE TO ROUND ADAPTER

D2 AIR DEVICE SCHEDULE (SUPPLY)

MARK	TYPE	AIR FLOW MIN CFM	MIN [L/s]	MAX CFM	MAX [L/s]	MAX APD IN WG	MAX APD [Pa]	MOUNTING	PANEL/FRAME SIZE IN X IN	PANEL/FRAME SIZE [mm X mm]	NECK SIZE IN X IN	NECK SIZE [mm X mm]	NC	DAMPER	FINISH	REMARKS
SD-10	PLAQUE	40	[19]	160	[76]	0.080	[20]	CEILING	12 X 12	[300 X 300]	6 ø	[152 ø]	20	NONE	WHITE	
SD-11	PLAQUE	40	[19]	160	[76]	0.080	[20]	CEILING	24 X 24	[600 X 600]	6 ø	[152 ø]	19	NONE	WHITE	
SD-12	PLAQUE	70	[33]	280	[130]	0.100	[25]	CEILING	24 X 24	[600 X 600]	8 ø	[203 ø]	23	NONE	WHITE	
SD-13	PLAQUE	110	[52]	380	[180]	0.090	[23]	CEILING	24 X 24	[600 X 600]	10 ø	[254 ø]	22	NONE	WHITE	
SD-14	PLAQUE	160	[76]	470	[220]	0.080	[20]	CEILING	24 X 24	[600 X 600]	12 ø	[305 ø]	19	NONE	WHITE	
SD-15	PLAQUE	220	[100]	640	[300]	0.090	[23]	CEILING	24 X 24	[600 X 600]	14 ø	[356 ø]	21	NONE	WHITE	
SD-16	PLAQUE	250	[120]	740	[350]	0.100	[25]	CEILING	24 X 24	[600 X 600]	16 ø	[406 ø]	22	NONE	WHITE	
SD-51	SUPPLY REGISTER	80	[38]	120	[57]	0.100	[25]	WALL	8 X 8	[203 X 203]	6 X 6	[152 X 152]	25	OBD	WHITE	
SD-52	SUPPLY REGISTER	80	[38]	160	[76]	0.090	[23]	WALL	12 X 8	[305 X 203]	10 X 6	[254 X 152]	25	OBD	WHITE	
SD-53	SUPPLY REGISTER	130	[61]	350	[170]	0.080	[20]	WALL	14 X 10	[356 X 254]	12 X 8	[305 X 203]	26	OBD	WHITE	
SD-54	SUPPLY REGISTER	200	[94]	500	[240]	0.100	[25]	WALL	14 X 12	[356 X 305]	12 X 10	[305 X 254]	26	OBD	WHITE	
SD-55	SUPPLY REGISTER	400	[190]	700	[330]	0.0.80	[20]	WALL	18 X 12	[508 X 305]	18 X 10	[457 X 254]	26	OBD	WHITE	
SD-56	SUPPLY REGISTER	360	[170]	700	[330]	0.070	[18]	WALL	28 X 12	[457 X 457]	26 X 10	[406 X 406]	27	OBD	WHITE	
SD-57	SUPPLY REGISTER	560	[260]	1100	[520]	0.070	[18]	WALL	42 X 12	[560 X 560]	40 X 10	[508 X 508]	28	OBD	WHITE	
SD-58	SUPPLY REGISTER	1250	[590]	3000	[1400]	0.100	[25]	WALL	32 X 32	[813 X 813]	30 X 30	[762 X 762]	36	OBD	WHITE	

NOTES:

1. SEE FLOOR PLAN FOR THROW PATTERN.
2. SEE DETAIL FOR DAMPER IN BRANCH DUCT SERVING EACH DIFFUSER.
3. PROVIDE SQUARE TO ROUND ADAPTER.

A5 FAN COIL UNIT SCHEDULE

UNIT DESIGNATION	TYPE	TOTAL CFM	OA CFM	EXTERNAL SP (IN WG)	COOLING COIL EAT DB/WB (°F)	LAT DB/WB (°F)	TOTAL COOLING (MBH)	SENSIBLE COOLING (MBH)	EWT (°F)	LWT (°F)	WATER FLOW (GPM)	MAX WTR ΔP (FT)	HEATING COIL EAT DB/WB (°F)	LAT DB/WB (°F)	TOTAL HEAT (MBH)	EWT (°F)	LWT (°F)	WATER FLOW (GPM)	MAX WTR ΔP (FT)	FILTERS (MERV)	MOTOR HP	MOTOR V/PH/HZ	EMERGENCY POWER	MAX NOISE (NC)	MAXIMUM UNIT DIMENSIONS
FCU-A	HORIZONTAL CONCEALED	250	⟨1⟩	0.4	75/62	55/54	5.9	4.7	45	55	1.2	8.6	70	95	6.7	140	120	0.7	1.0	7(2")	0.07	120/1/60	NO	35	27L X 10H X 23W
FCU-B	HORIZONTAL CONCEALED	300	⟨1⟩	0.4	75/62	55/54	7.2	5.5	45	55	1.5	13.3	70	95	8.1	140	120	0.8	1.7	7(2")	0.08	120/1/60	NO	35	27L X 10H X 28W
FCU-C	HORIZONTAL CONCEALED	400	⟨1⟩	0.4	75/62	55/54	9.9	8.1	45	55	2.1	5.6	70	95	10.8	140	120	1.1	3.9	7(2")	0.10	120/1/60	NO	35	27L X 10H X 38W
FCU-D	HORIZONTAL CONCEALED	700	⟨1⟩	0.4	75/62	55/54	17.0	13.3	45	55	3.5	17.9	70	95	18.9	140	120	1.8	10.9	7(2")	0.16	120/1/60	NO	35	27L X 10H X 45W
FCU-E	HORIZONTAL CONCEALED	800	⟨1⟩	0.4	75/62	55/54	18.1	15.0	45	55	3.8	5.5	70	95	21.6	140	120	2.2	18.6	7(2")	0.24	120/1/60	NO	35	27L X 10H X 64W

NOTES:

1. REFER TO FLOOR PLANS FOR VENTILATION CFM

B5 CLEAN STEAM GENERATOR SCHEDULE

UNIT NO.	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	TYPE	SOURCE OF MAKEUP	WATER CONDITIONS GPM	WATER CONDITIONS EWT (°F)	PRODUCED STEAM PSIG	PRODUCED STEAM LBS/HR	CONTROL VALVE STEAM PRESSURE (PSIG)	CONTROL VALVE (LBS/HR)	HEAT EXCHANGER STEAM PRESSURE (PSIG)	V/PH/HZ	EMERGENCY POWER	REMARKS
CSG-50	MER-10	8TH, 9TH, 10TH	AC-50	STEAM-TO-STEAM	DCW	0.3	40	0	115	15	120	15	120/1/60	NO	FOR AC-50 HUMIDIFICATION, CONNECT H-50

C5 INDUCTION UNIT SCHEDULE

UNIT NO.	MAX UNIT DIMENSIONS ⟨1⟩	TYPE	PRIMARY AIR CFM	PRIMARY AIR COOLING (BTUH) ⟨2⟩	NOZZLE STATIC PRESSURE (IN. W.G.)	COOLING COIL CAPACITY (BTUH) ⟨3⟩	TOTAL COOLING (BTUH) ⟨4⟩	WATER FLOW (GPM)	MAX WTR ΔP (FT)	HEATING COIL MINIMUM HEATING CAPACITY (BTUH) ⟨5⟩	WATER FLOW (GPM)	MAX WTR ΔP (FT)	FILTER (LINT SCREEN)	SOUND POWER LEVEL (dB) OCTAVE BAND (HZ) 250	500	1K	2K	4K	8K
50-4	58 X 24 X 14	HORIZONTAL CABINET	50	1080	2.25	4336	5416	1.5	10	4810	1.5	10	YES	52	49	45	43	43	46
75-4	58 X 24 X 14	HORIZONTAL CABINET	75	1620	2.18	5569	7189	1.5	10	5015	1.5	10	YES	52	52	45	43	43	46
100-5	70 X 24 X 14	HORIZONTAL CABINET	100	2160	2.25	6879	9039	1.5	10	5420	1.5	10	YES	52	52	45	43	43	46
125-5	70 X 24 X 14	HORIZONTAL CABINET	125	2700	2.10	7005	9705	1.5	10	5825	1.5	10	YES	52	52	45	43	43	46

NOTES:

1. UNIT DIMENSIONS INCLUDE 12" ADDED VALVE SERVICE SECTION.
2. PRIMARY AIR = 55°F.
3. COOLING COIL CAPACITY BASED ON 45° EWT/ 75° ROOM SETPOINT (30°F Δ T), 55° PRIMARY AIR.
4. TOTAL COOLING INCLUDES PRIMARY AIR AND COOLING COIL BTUH'S.
5. HEATING COIL CAPACITY BASED ON 140° EWT/ 70° ROOM SETPOINT (70° Δ T), 55°F PRIMARY AIR.

D5 STEAM PRESSURE REDUCING VALVE SCHEDULE

UNIT NO.	LOCATION	SYSTEM AND/OR SERVICE	QUANTITY	CAPACITY (LBS/HR)	MAX FLOW (WIDE OPEN VALVE) (LBS/HR)	PRESS IN (PSIG)	PRESS OUT (PSIG)	REMARKS
PRV-50	MER-10	CSG-50	1	120	120	60	15	

E5 AIR DEVICE SCHEDULE (LINEAR)

MARK	TYPE	AIR FLOW MIN CFM	MIN [L/s]	MAX CFM	MAX [L/s]	MAX APD IN WG	MAX APD [Pa]	MIN THROW FT	MIN THROW [M]	MAX THROW FT	MAX THROW [M]	# OF SLOTS	SLOT WIDTH IN	SLOT WIDTH [mm]	PLENUM SIZE IN ⟨3⟩	PLENUM SIZE [mm] ⟨3⟩	NECK SIZE IN	NECK SIZE [mm]	THROW PATTERN	THROW TYPE	NC	DAMPER	FINISH	REMARKS
SD-33	LINEAR	50	[23]	150	[70]	0.27	66.70	4-7-15	[2.0-3.1-4.9]	18-22-30	[5.6-6.8-9.2]	2	1	[25]	24X4	[600X100]	6°	[152°]	2 WAY	HORIZONTAL	32	NONE	WHITE	
SD-34	LINEAR	100	[47]	300	[140]	0.27	66.70	4-8-16	[2.2-3.3-5.0]	18-22-30	[5.6-6.8-9.2]	2	1	[25]	48X4	[1200X100]	7°	[177°]	2 WAY	HORIZONTAL	36	NONE	WHITE	
SD-35	LINEAR	140	[66]	500	[240]	0.27	66.70	4-7-15	[2.0-3.1-4.9]	17-21-30	[5.3-6.5-9.2]	2	2	[50]	24X5	[600X127]	10°	[254°]	2 WAY	HORIZONTAL	41	NONE	WHITE	
SD-36	LINEAR	150	[71]	510	[240]	0.28	69.40	4-8-16	[2.2-3.3-5.0]	18-22-31	[5.4-6.6-9.3]	2	2	[50]	24X5	[600X127]	12°	[305°]	2 WAY	HORIZONTAL	42	NONE	WHITE	
SD-37	LINEAR	180	[85]	570	[270]	0.18	44.60	3-5-11	[0.9-1.7-3.3]	12-15-22	[3.5-4.7-6.6]	2	2.5	[63]	24X5	[600X127]	10°	[254°]	2 WAY	HORIZONTAL	43	NONE	WHITE	
SD-38	LINEAR	210	[99]	660	[310]	0.24	59.80	4-6-13	[1.2-1.9-3.9]	13-17-23	[4.1-5.0-7.1]	2	2.5	[63]	24X5	[600X127]	12°	[305°]	2 WAY	HORIZONTAL	41	NONE	WHITE	

NOTES:

1. SEE DETAIL FOR DAMPER IN BRANCH DUCT SERVING EACH DIFFUSER.
2. PROVIDE COLLAR AND TRANSITION AS REQUIRED.
3. PROVIDE CONTINUOUS LINEAR FACE PANEL FOR UNBROKEN APPEARANCE AS INDICATED ON FLOOR PLANS.
   SEE ARCHITECTURE FLOOR PLANS FOR FINAL FACE PANEL SIZE.

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Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

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Houston ■ Los Angeles ■ Mumbai ■ New York ■ Phoenix
St. Louis ■ San Francisco ■ Shanghai ■ Toronto
Vancouver ■ Victoria ■ Washington DC

BUILDING IS FULLY SPRINKLERED

Drawing Title: MECHANICAL SCHEDULES 2

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date: AUGUST 15, 2013 | Checked: JB | Drawn: SO

Project Number: 630PR2600

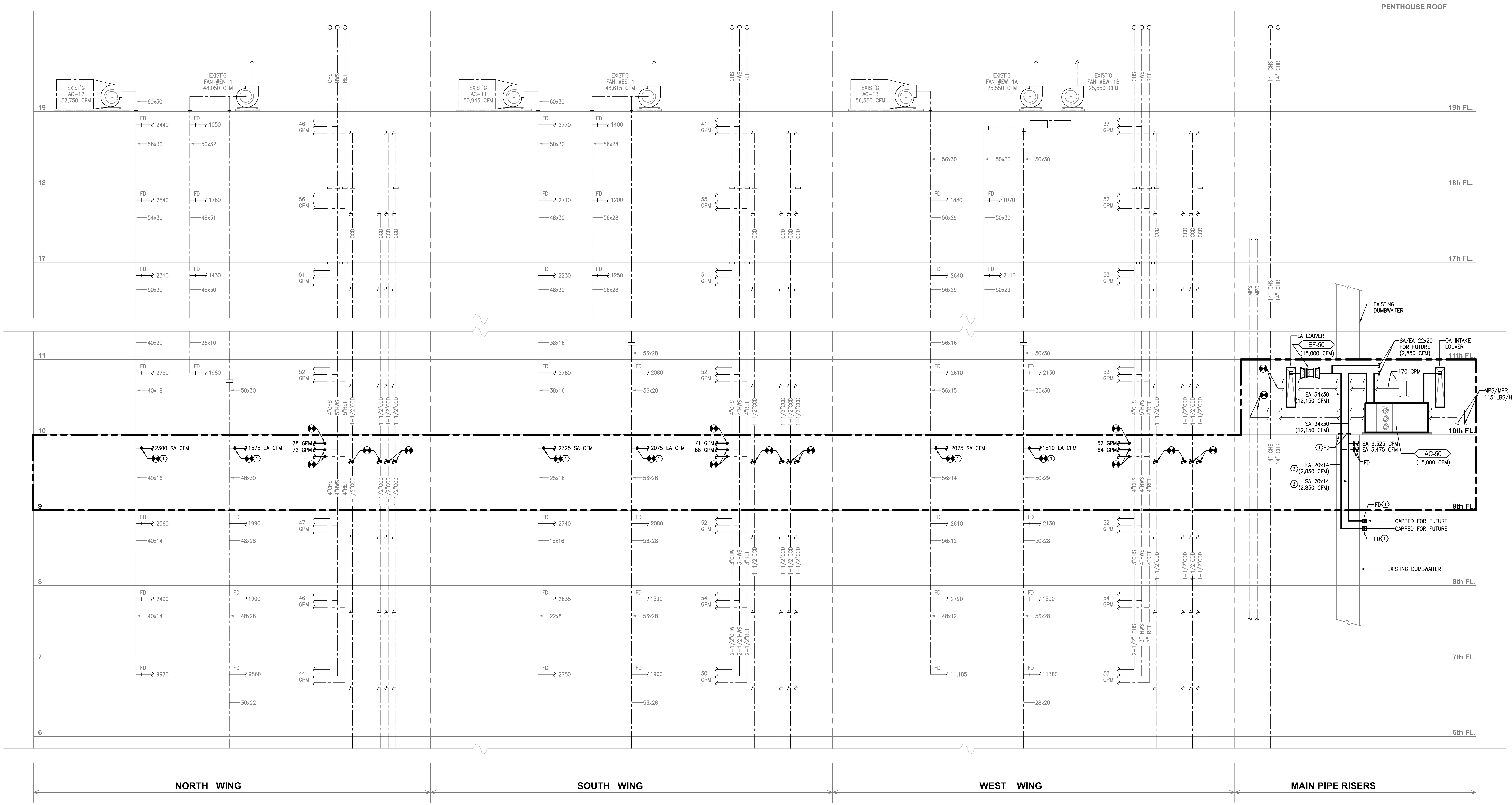
Building Number: 1

Drawing Number: 1-MH602

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231



HEAD END REBALANCE:
REBALANCE HEAD END EQUIPMENT TO ACHIEVE NEW FLOW RATES ON NINTH FLOOR WHILE MAINTAINING PRE-CONSTRUCTION FLOW RATES ON ALL OTHER FLOORS.

KEY NOTES:

1. PROVIDE NEW FIRE DAMPER.
2. EXTEND 20X14 SUPPLY AND EXHAUST DUCT DOWN BELOW LEVEL 9 SLAB AND CAP ABOVE LEVEL 8 CEILING.

BUILDING IS FULLY SPRINKLERED

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

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Vancouver ■ Victoria ■ Washington DC

Drawing Title: MECHANICAL RISER DIAGRAM

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date: AUGUST 15, 2013 | Checked: JB | Drawn: SO

Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MH701

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

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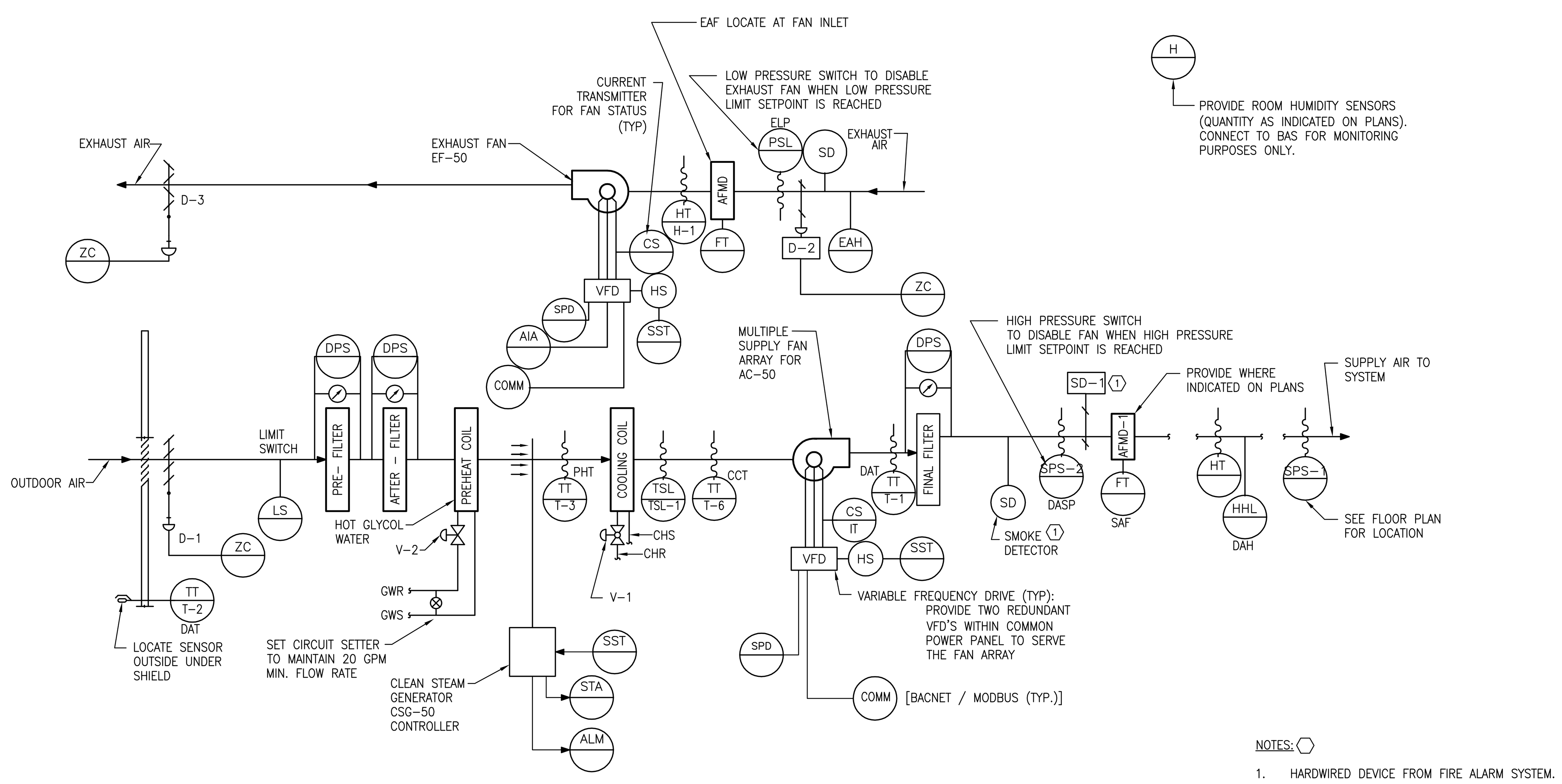
VA FORM 08-6231

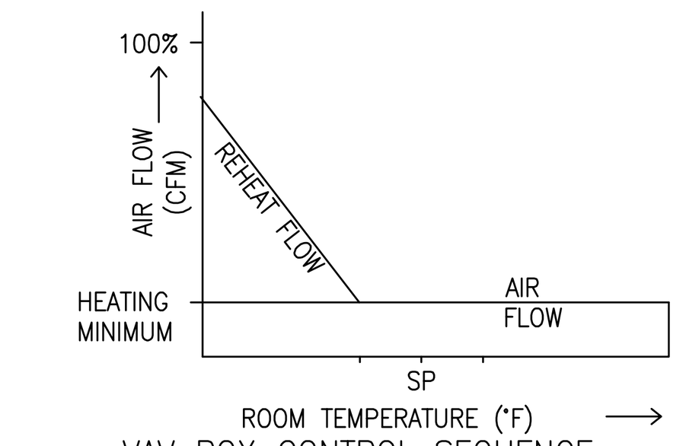


NOTES: ⬡

1. HARDWIRED DEVICE FROM FIRE ALARM SYSTEM.

C1 **100% OUTSIDE AIR VARIABLE VOLUME SUPPLY AND EXHAUST AIR HANDLING SYSTEM CONTROL DIAGRAM**

(ALL DEVIDES ON ECC (BAS))



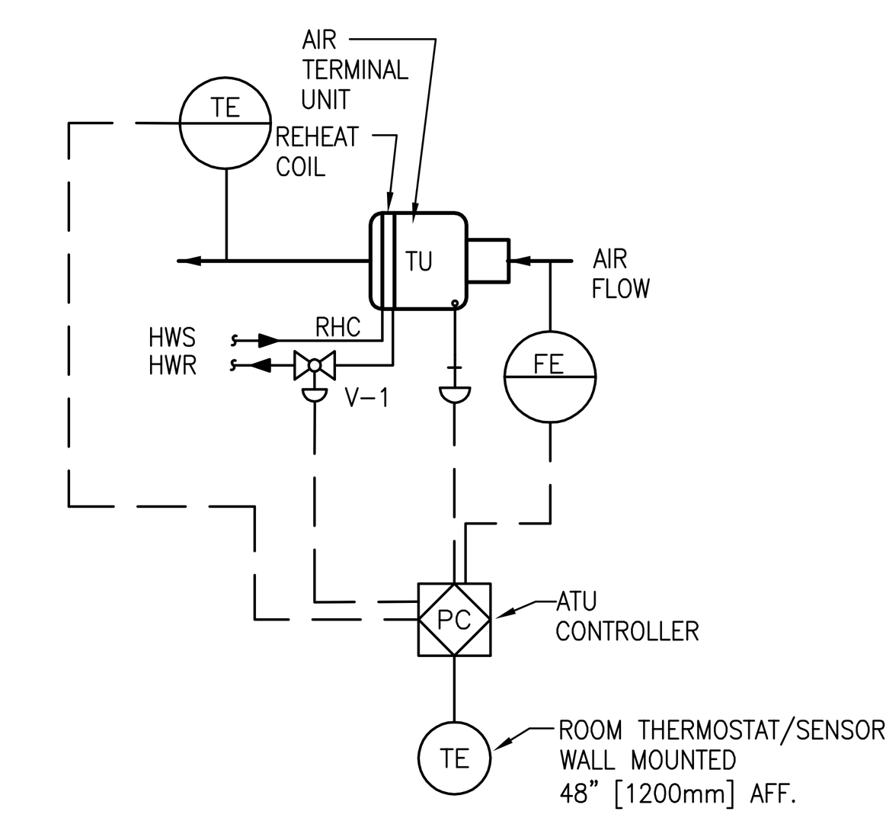
VAV BOX CONTROL SEQUENCE

W/DEADBAND

A. SET POINTS SHALL BE SET AS FOLLOWS:
COOLING 75°F (ADJ)
HEATING 70°F(ADJ)
DEADBAND OF 5° F BETWEEN HEATING AND COOLING SET POINTS WILL BE MAINTAINED.

B. UPON FALL IN SPACE TEMPERATURE VALVE V-1 WILL MODULATE TO MAINTAIN SET POINT ± .5° F. THE ADJUSTABLE TOLERANCE OF ± .5° F HAS BEEN SELECTED TO PREVENT VALVE HUNTING.

C. THE REVERSE SHALL OCCUR ON THE RISE IN SPACE TEMPERATURE.



WITH REHEAT COIL

C5 **VARIABLE VOLUME AIR TERMINAL UNIT (WITH REHEAT COIL) CONTROL DIAGRAM**

(ALL DEVICES ON ECC (BAS))

1. GENERAL

1.1 UNIT IS NORMALLY STARTED AND STOPPED REMOTELY AT THE ECC. H-O-A SWITCH SHALL BE KEPT IN THE "AUTO" POSITION. "HAND" AND "OFF" POSITIONS SHALL BE USED ONLY FOR MAINTENANCE. WHEN THE UNIT IS "OFF" EXHAUST FAN EF-50 SHALL BE "OFF", D-1, D-2 AND D-3, SHALL BE FULLY CLOSED. WHEN THE UNIT IS "ON" EXHAUST FAN EF-50 SHALL BE "ON", D-1, D-2, D-3, AND SD-1 SHALL BE FULLY OPEN.

2. TEMPERATURE CONTROL

2.1 SUPPLY AIR TEMPERATURE, SENSED BY TT-1, SHALL BE MAINTAINED AT SETPOINT VETERANS AFFAIRS (VA) DIGITAL CONTROL PANEL BY MODULATING V-1 OR V-2 IN SEQUENCE. SET INITIAL SUPPLY AIR TEMPERATURE SETPOINT AT 55°F. THE SUPPLY AIR TEMPERATURE SHALL VARY FROM 55° TO 60°F WHEN CHILLED WATER IS AVAILABLE TO THE INDUCTION UNITS AND FROM 60° TO 80° WHEN HOT WATER IS AVAILABLE TO THE INDUCTION UNITS.

3. AIR FLOW CONTROL

3.1 THE SUPPLY AIR FLOW SHALL BE CONTROLLED BY THE DIGITAL CONTROL PANEL MODULATING THE SUPPLY FAN VARIABLE SPEED MOTOR CONTROLLER TO MAINTAIN 2.0" [50mm] OF DUCT STATIC PRESSURE (FIELD ADJUSTABLE), SENSED BY SPS-1. RESET STATIC PRESSURE BASED ON ACTUAL BUILDING LOAD BY POLLING ALL ATU

3.2 THE DIGITAL CONTROL PANEL, USING TOTAL SUPPLY AIR AND EXHAUST AIR FLOW SIGNALS, SHALL RESET THE EXHAUST AIR FAN VSMC TO MAINTAIN A CONSTANT AIR FLOW EQUAL TO THE SUPPLY AIR FLOW LESS 600 CFM FOR GENERAL RESISTANCE TO INFILTRATION.

3.3 USING HIGH PRESSURE SENSOR PSH-1 LOCATED AT THE SUPPLY FAN DISCHARGE, SHALL PREVENT THE SUPPLY FAN FROM DEVELOPING OVER 6" [150mm] OF STATIC PRESSURE (FIELD ADJUSTABLE). IF STATIC PRESSURE AT PSH-1 DOES EXCEED 6" [150mm] THE SUPPLY AIR FAN SHALL STOP. PSH-1 SHALL BE HARDWIRED TO THE SUPPLY FAN VSMC AND UNIT SHALL BE SHUTDOWN IN HAND, AUTO OR BYPASS MODE. PSH-1 WILL REQUIRE MANUAL RESET AT THE DEVICE.

4. HUMIDITY CONTROL

4.1 WHEN THE DIGITAL CONTROL PANEL IS NOT CALLING FOR HUMIDITY, SENSED BY EXHAUST AIR HUMIDITY EAH, START/STOP SIGNAL TO CSG-50 CONTROLLER SHALL BE "OFF". WHEN THE DIGITAL CONTROL PANEL IS CALLING FOR HUMIDITY, START/STOP SIGNAL TO CSG-50 CONTROLLER SHALL BE "ON". SEE C4/1-,H802 FOR CSG-50 CONTROL.

4.2 EXHAUST AIR HUMIDITY SHALL BE MAINTAINED AT SETPOINT OF 30% RH (ADJ) VIA DIGITAL CONTROL PANEL BY CSG-50 INTEGRAL CONTROLLER MODULATING STEAM OUTPUT TO MAINTAIN THE DESIRED HUMIDITY. DCP SHALL STOP CSG-50 WHENEVER THE SUPPLY FAN IS OFF.

5. FREEZE PROTECTION

5.1 IF THE AIR TEMPERATURE AS SENSED BY TT-3 FALLS BELOW 45°F [7°C], AN ALARM SIGNAL SHALL INDICATE AT THE DCP AND ECC. IF THIS TEMPERATURE FALLS BELOW 40°F [4.4°C], AS SENSED BY THE TSL THE SUPPLY FAN SHALL SHUT DOWN AND A CRITICAL ALARM SHALL INDICATE AT THE DIGITAL CONTROL PANEL AND ECC. TSL SHALL BE HARDWIRED TO THE SUPPLY FAN VFD AND UNIT SHALL BE SHUTDOWN IN HAND,AUTO OR BYPASS MODE. TSL WILL REQUIRE MANUAL RESET AT THE DEVICE.

6. AUTOMATIC SHUTDOWN/RESTART

6.1 WHEN SMOKE IS DETECTED BY EITHER SUPPLY OR EXHAUST SMOKE DETECTOR, SD, THE SUPPLY FAN SHALL SHUT "OFF" AND AN ALARM SIGNAL SHALL BE TRANSMITTED TO THE FIRE ALARM SYSTEM. ALL SMOKE DAMPERS IN THE SUPPLY AND RETURN DUCTS SHALL CLOSE.

6.2 EXHAUST FANS SERVING AREA OF THE SUPPLY FAN SHALL CONTINUE TO RUN. SUPPLY FAN SHALL RESTART AND SMOKE DAMPERS SHALL OPEN WHEN FIRE ALARM CIRCUIT IS RESET.

7. VSD LEAD/LAG

7.1 UPON FAILURE OF LEAD VARIABLE SPEED DRIVE, START THE LAG VARIABLE SPEED DRIVE TO MEET THE STATIC PRESSURE SETPOINT.

F1 **SEQUENCE OF OPERATION FOR VARIABLE AIR VOLUME UNIT WITH MINIMUM OUTSIDE AIR**

BUILDING: VA MANHATTAN AC-50 — PAGE:

SYSTEM: VAV AIR HANDLER

			POINT LEGEND		SYSTEM OUTPUTS: BINARY				SYSTEM OUTPUTS: ANALOG			SYSTEM INPUTS: BINARY							SYSTEM INPUTS: ANALOG									SYSTEM SOFTWARE/CONTROL: ALARM PROCESSING							SYSTEM SOFTWARE/CONTROL: APPLICATION/FUNCTION																
SYSTEM COMPONENT:	POINT ID	ABBREVIATION	PRIORITY/ADD-ALTERNATE NO.	--	ELECTRIC DEVICE	START/STOP	OPEN/CLOSE	--	SPEED COMMAND	VALVE POSITION	DAMPER POSITION	STATUS	ALARM	PRESSURE	HIGH HUMIDITY	HIGH STATIC PRESSURE	LOW TEMPERATURE	--	TEMPERATURE (TI)	PRESSURE	POSITION	FLOW	PERCENT	STATIC PRESSURE	CARBON MONOXIDE	HUMIDITY	VACUUM	LOCAL ALARM PANEL	AREA ALARM PANEL	MASTER ALARM PANEL	HIGH LIMIT	LOW LIMIT	--	--	SCHEDULE START/STOP	FUNCTION	DUTY CYCLE	TEMPERATURE ECONOMIZER	ENTHALPY ECONOMIZER	TEMPERATURE RESET	DEMAND LIMITING	TEMPERATURE OVERRIDE	STATIC PRESSURE RESET	--	--	PRESSURE/VOLUME CONTROL	FAILURE MODE	SPACE TEMP. CONTROL	FULL COMMUNICATION	TRENDING	REMARKS
EXHAUST AIR HUMIDITY	AI-2	EAH											●													●																								●	
EXHAUST AIR FLOW (CFM)	AI-3	EAF											●									●									●																			●	
PRE-HEAT TEMPERATURE	AI-5	PHT											●						●																															●	
COOLING COIL TEMPERATURE	AI-6	CCT											●						●												●																			●	
DISCHARGE AIR TEMPERATURE	AI-7	DAT											●						●																				●											●	
DISCHARGE STATIC PRESSURE	AI-8	SPS-1											●											●							●												●							●	
DISCHARGE AIR HUMIDITY	AI-9	DAH											●													●																								●	
SUPPLY AIR FLOW (CFM)	AI-10	SAF											●									●									●																			●	
OUTSIDE AIR TEMPERATURE	AI-11	OAT																	●																															●	
EXHAUST LOW PRESSURE	BI-1	ELP												●																																				●	
EXHAUST FAN STATUS	BI-2	RF-STS										●																																						●	
SUPPLY FAN STATUS	BI-3	SF-STS										●																																						●	
PREHEAT LOW LIMIT	BI-4	TSL-1															●															●																		●	
STATIC PRESSURE HIGH LIMIT	BI-5	SPS-2														●															●																			●	
HUMIDITY HIGH LIMIT	BI-6	HHL													●																●																			●	
SUPPLY FAN VSMC ALARM	BI-7	SF-ALA											●																																					●	
EXHAUST FAN VSMC ALARM	BI-8	EF-ALA											●																																					●	
EXHAUST FAN VSMC	AO-1	EF-SPD							●																																							●	●	FULL COMMUNICATION
SUPPLY FAN VSMC	AO-2	SF-SPD							●																																							●	●	FULL COMMUNICATION
OUTSIDE AIR DAMPER	AO-3	OAD									●																										●											●	
EXHAUST AIR DAMPER	AO-5	EAD									●																										●											●	
PRE-HEAT VALVE V-2	AO-8	PHT-V1								●																																								●	
COILING VALVE V-1	AO-9	CLG-V1								●																																								●	
CLEAN STEAM GENERATOR	AO-10	HUM-V4								●																																								●	
EXHAUST FAN START/STOP	BO-1	EF-SST				●																													●															●	
SUPPLY FAN START/STOP	BO-2	SF-SST				●																													●															●	
PRE-FILTER	A1-1	DPS											●	●						●																														●	
AFTER-FILTER	A1-12	DPS											●	●						●																														●	
FINAL FILTER	A1-13	DPS											●	●						●																														●	
LIMIT SWITCH	B1-9	LS											●	●																																				●	

ALL POWER FOR HVAC CONTROLS DEVICES SHALL BE SERVICED FROM ELECTRICAL PANEL 10PEL1 LOCATED IN THE NEW 10TH FLOOR MER.

F5 **POINTS LIST FOR VAV AIR HANDLING UNIT WITH MINIMUM OUTSIDE AIR**

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

CONSULTANTS:

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Houston ■ Los Angeles ■ Mumbai ■ New York ■ Phoenix
St. Louis ■ San Francisco ■ Shanghai ■ Toronto
Vancouver ■ Victoria ■ Washington DC

Drawing Title: MECHANICAL DIAGRAMS - CONTROLS 1

Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM MANHATTAN VAMC - BUILDING 1 9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET NEW YORK, NY 10010

Date: AUGUST 15, 2013 — Checked: JB — Drawn: SO

BUILDING IS FULLY SPRINKLERED

Project Number: 630PR2600

Building Number: 1

Drawing Number: 1-MH801

Office of Construction & Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231

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three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot

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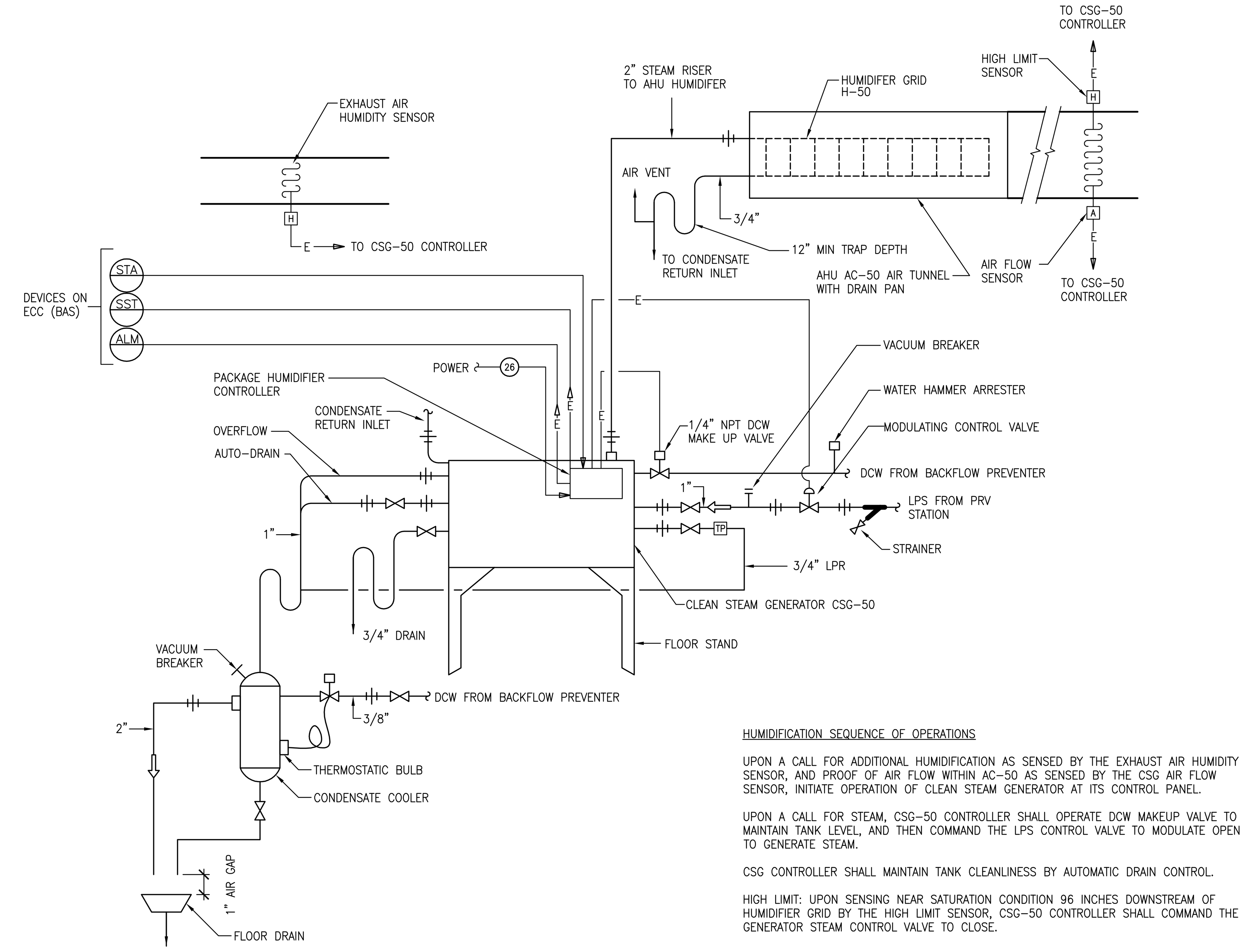


HUMIDIFICATION SEQUENCE OF OPERATIONS

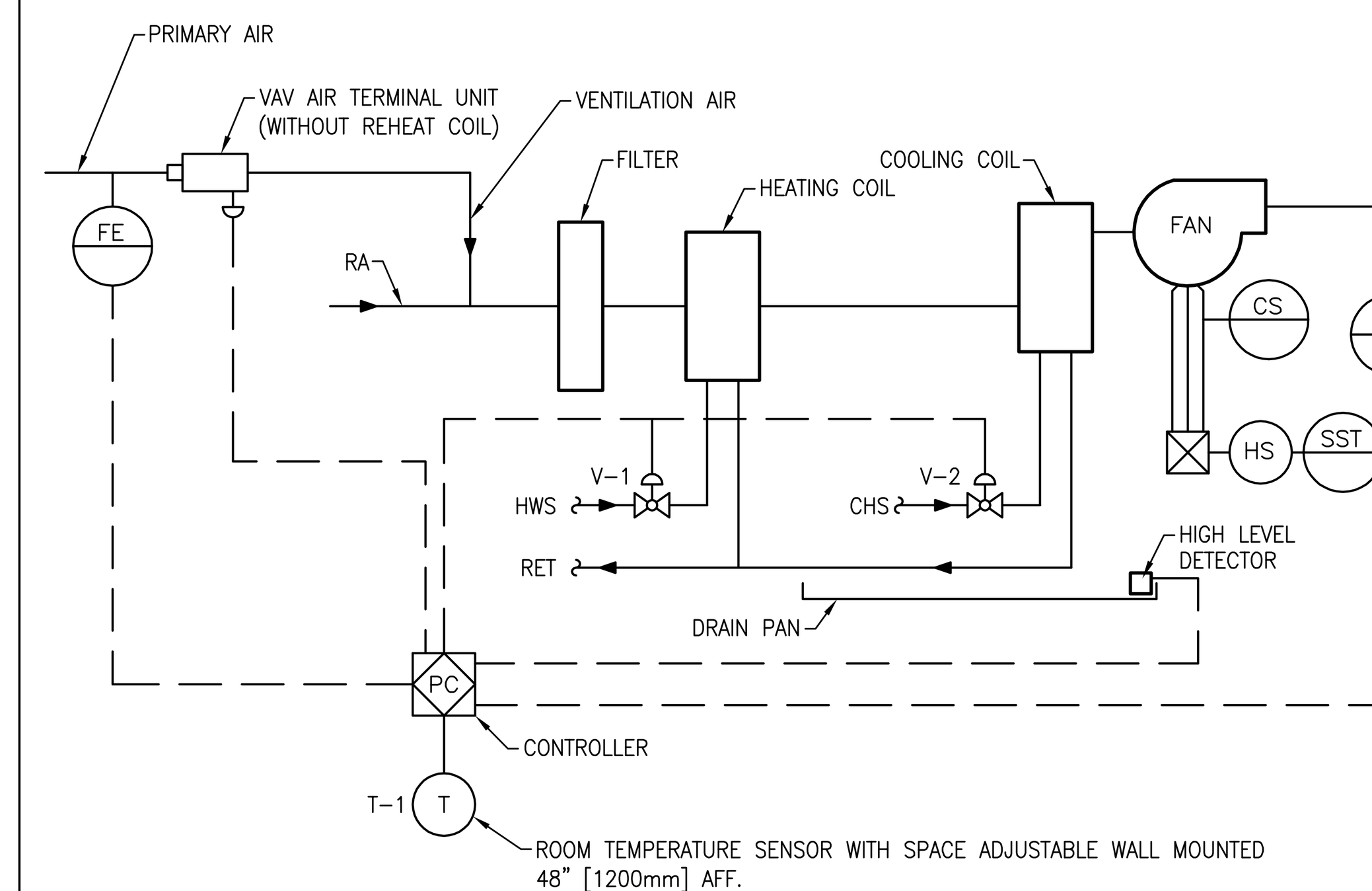
UPON A CALL FOR ADDITIONAL HUMIDIFICATION AS SENSED BY THE EXHAUST AIR HUMIDITY SENSOR, AND PROOF OF AIR FLOW WITHIN AC-50 AS SENSED BY THE CSG AIR FLOW SENSOR, INITIATE OPERATION OF CLEAN STEAM GENERATOR AT ITS CONTROL PANEL.

UPON A CALL FOR STEAM, CSG-50 CONTROLLER SHALL OPERATE DCW MAKEUP VALVE TO MAINTAIN TANK LEVEL, AND THEN COMMAND THE LPS CONTROL VALVE TO MODULATE OPEN TO GENERATE STEAM.

CSG CONTROLLER SHALL MAINTAIN TANK CLEANLINESS BY AUTOMATIC DRAIN CONTROL.

HIGH LIMIT: UPON SENSING NEAR SATURATION CONDITION 96 INCHES DOWNSTREAM OF HUMIDIFIER GRID BY THE HIGH LIMIT SENSOR, CSG-50 CONTROLLER SHALL COMMAND THE GENERATOR STEAM CONTROL VALVE TO CLOSE.

C4 CLEAN STEAM GENERATOR (CSG-50), AHU HUMIDIFIER (H-50) FLOW AND CONTROL DETAIL
SCALE: NTS

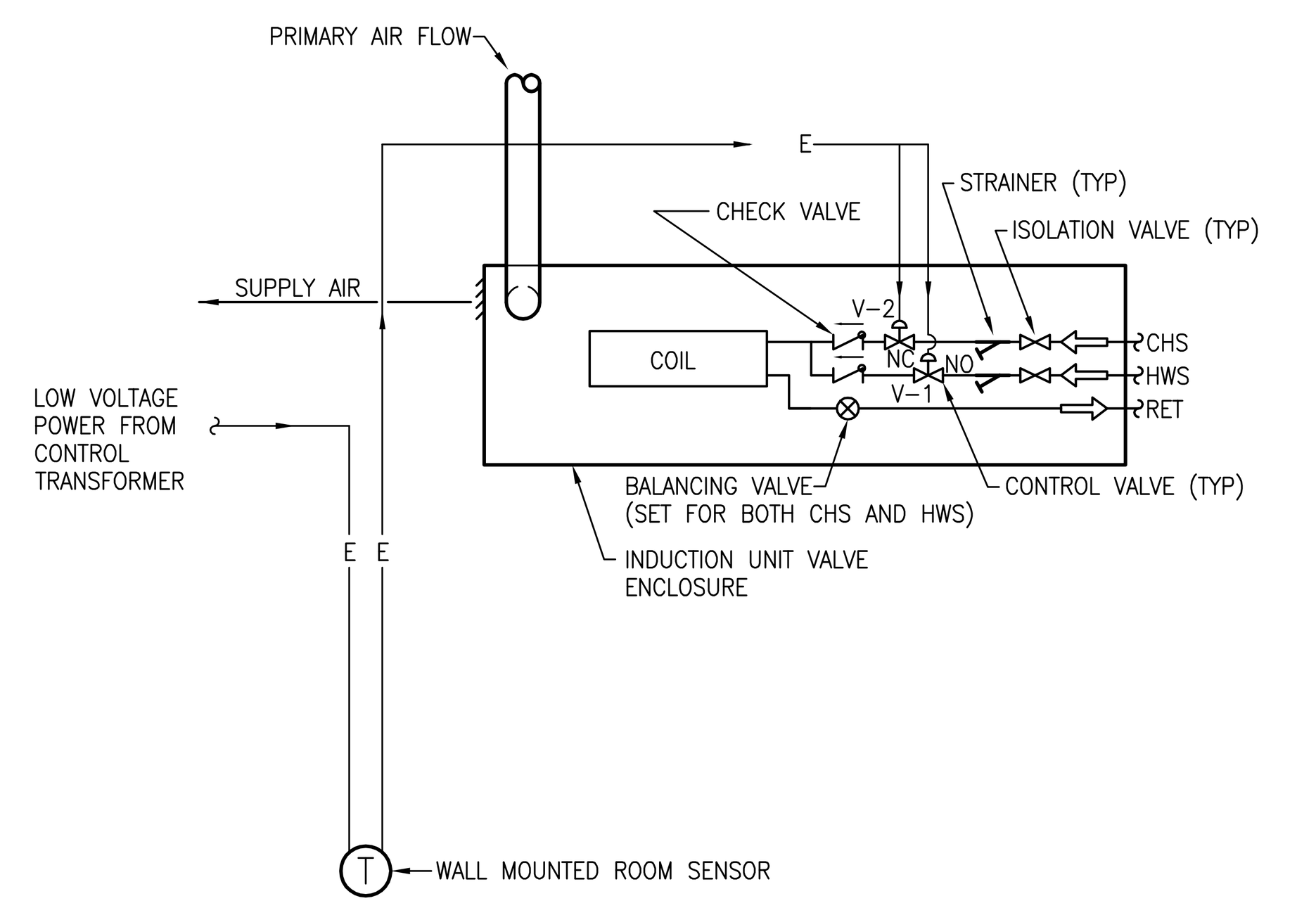


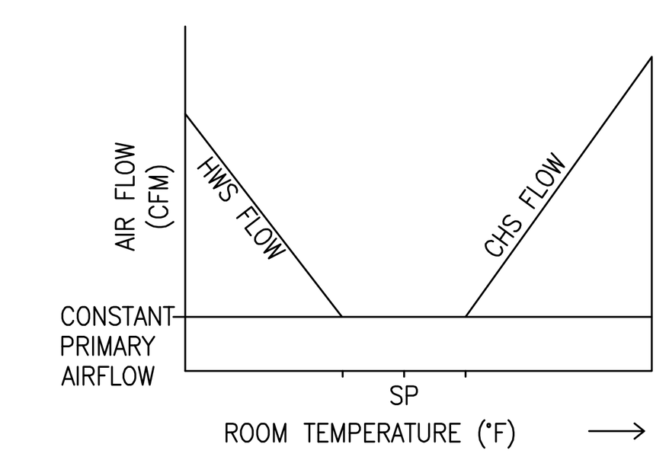
FAN COIL SEQUENCE OF OPERATION (NONPATIENT ROOMS)

FAN COIL SHALL OPERATE ON A SCHEDULE AS SET BY ECC. FAN SHALL RUN CONTINUOUSLY IN OCCUPIED MODE. FAN STATUS SHALL BE MONITORED AND AN ALARM MESSAGE SHALL BE GENERATED IN THE EVENT THE UNIT FAILS TO RUN BETWEEN THE RANGE OF 70°-75°F SPACE TEMPERATURE BOTH V-1 & V-2 SHALL BE CLOSED. UPON RISE IN TEMPERATURE ABOVE 75°F V-2 SHALL MODULATE OPEN TO MAINTAIN 75°F. UPON FALL IN TEMPERATURE BELOW 70°F. HEATING VALVE V-1 SHALL MODULATE TO OPEN TO MAINTAIN 70°F. DRAIN PAN DETECTION, SHUT DOWN UNIT AND PROVIDE ALARM AT CENTRAL WORKSTATION.

VAV TERMINAL UNIT SHALL PROVIDE CONSTANT FLOW RATE OF VENTILATION AIR.

C8 FAN COIL UNIT CONTROLS
(ALL DEVICES ON ECC [BAS])





INDUCTION UNIT CONTROL SEQUENCE
W/DEADBAND

A. SET POINTS SHALL BE SET AS FOLLOWS:
COOLING 75°F (ADJ)
HEATING 70°F(ADJ)
DEADBAND OF 5° F BETWEEN HEATING AND COOLING SET POINTS WILL BE MAINTAINED.

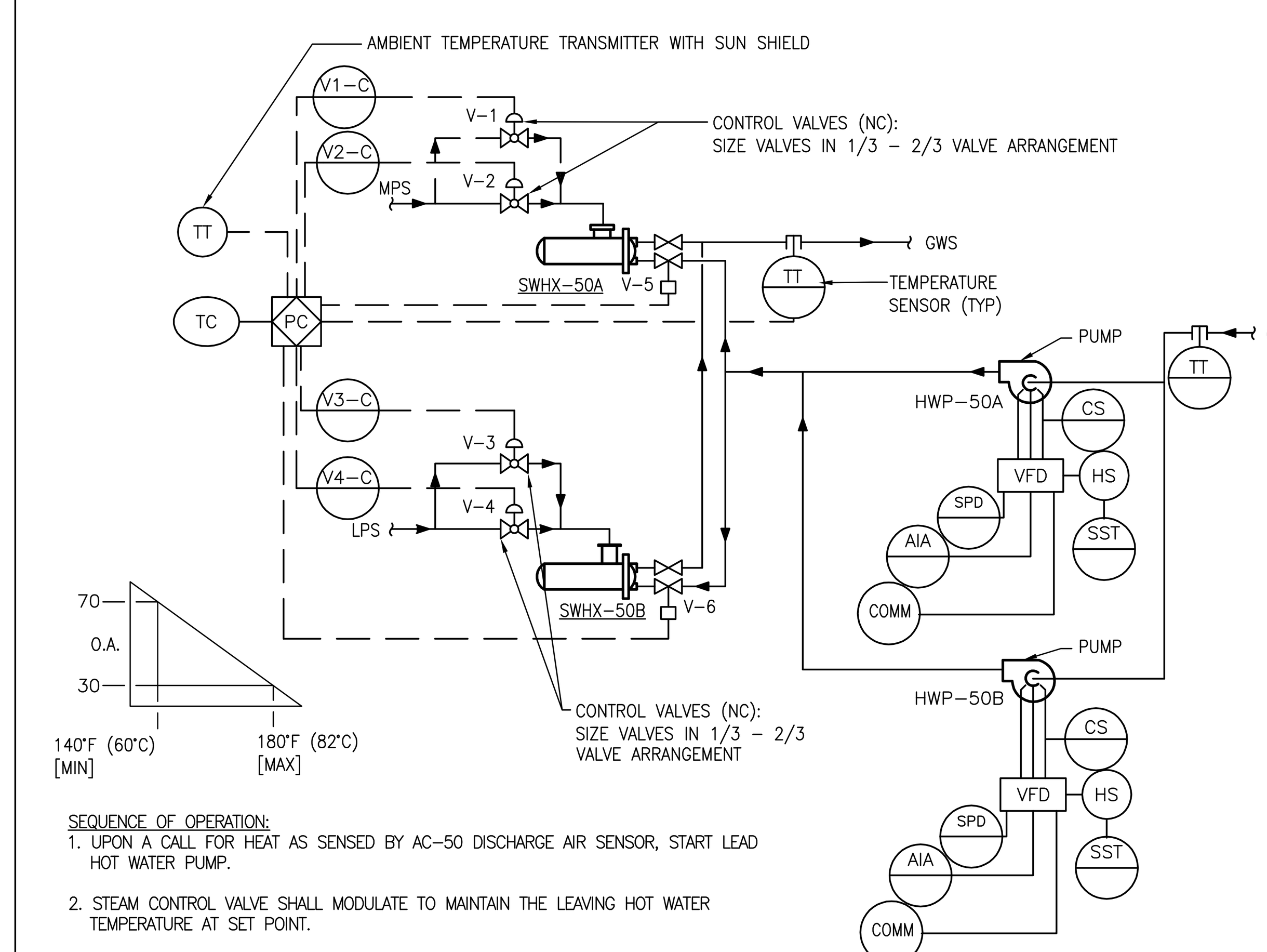
B. PRIMARY AIR SHALL SUPPLY CONTINUOUSLY.

C. UPON FALL IN SPACE TEMPERATURE THE VALVE V-1 WILL MODULATE TO MAINTAIN SET POINT ± .5° F. THE ADJUSTABLE TOLERANCE OF ± .5° F HAS BEEN SELECTED TO PREVENT VALVE HUNTING

D. THE REVERSE SHALL OCCUR ON THE RISE IN SPACE TEMPERATURE.

E. UPON FURTHER RISE IN SPACE TEMPERATURE, MODULATE VALVE V-2 TO MAINTAIN SETPOINT ± .5° F.

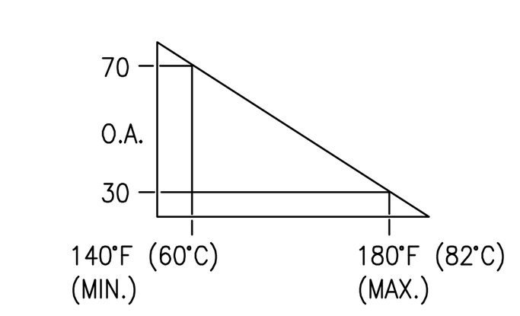
F4 INDUCTION UNIT FLOW AND CONTROL DIAGRAM
(NO CONNECTION TO ENGINEERING CONTROL CENTER [ECC])
SCALE: NTS



SEQUENCE OF OPERATION:
1. UPON A CALL FOR HEAT AS SENSED BY AC-50 DISCHARGE AIR SENSOR, START LEAD HOT WATER PUMP.
2. STEAM CONTROL VALVE SHALL MODULATE TO MAINTAIN THE LEAVING HOT WATER TEMPERATURE AT SET POINT.
3. THE LEAVING HOT WATER TEMPERATURE SHALL BE RESET INVERSELY WITH THE OUTDOOR TEMPERATURE AS SCHEDULED.
4. THE LEAD AND LAG PUMPS SHALL BE SEQUENTIAL BY THE OPERATOR CONTROLS AT THE PRE-DETERMINED INTERVAL (USUALLY 7 DAYS). IN THE EVENT THE PUMP FAILS TO START WITHIN 30 SECONDS, AN ALARM SHALL BE INITIATED AND THE SECOND PUMP SHALL START AUTOMATICALLY.
5. HEAT EXCHANGERS SHALL BE SEQUENCED MANUALLY USING VALVES V-5 OR V-6.

ALL POWER FOR HVAC CONTROLS DEVICES SHALL BE SERVICED FROM ELECTRICAL PANEL 10PEL1 LOCATED IN THE NEW 10TH FLOOR MER.

VALVE SEQUENCE:
1. V-1 (1/3 CAPACITY) MODULATING FULLY OPEN TO MAINTAIN SET POINT (V-3 SIMILAR).
2 V-2 (2/3 CAPACITY) MODULATE FULLY OPEN TO MAINTAIN SET POINT (V-4 SIMILAR).
3. BOTH V-1 & V-2 MODULATE TOGETHER TO MAINTAIN SET POINT (V-3 & V-4 SIMILAR).



TYP OSA RESET SCHEDULE

F8 DUAL HEAT EXCHANGER CONTROLS (HEATING SYSTEM)
(ALL DEVICES ON ECC [BAS])

BUILDING IS FULLY SPRINKLERED
Scale: AS NOTED

Revisions:	Date
ISSUED FOR CONSTRUCTION	08/15/2013

CONSULTANTS:

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Houston ■ Los Angeles ■ Mumbai ■ New York ■ Phoenix
St. Louis ■ San Francisco ■ Shanghai ■ Toronto
Vancouver ■ Victoria ■ Washington DC

Drawing Title: MECHANICAL DIAGRAMS - CONTROLS 2
Approved: Project Director

Project Title: VA NY HARBOR HEALTHCARE SYSTEM
MANHATTAN VAMC - BUILDING 1
9TH FLOOR RENOVATIONS

Location: 423 EAST 23RD STREET
NEW YORK, NY 10010

Date: AUGUST 15, 2013 | Checked: JB | Drawn: SO

Project Number: 630PR2600
Building Number: 1
Drawing Number: 1-MH802

Office of Construction & Facilities Management
VA U.S. Department of Veterans Affairs

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